

## CURRICULUM VITAE (last update November 2018)

**Giacomo Cao**

Professor of Chemical  
Engineering: March 2001 - present

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### **A. Personal Information:**

Date of Birth: September 22, 1960  
Place of Birth: Cagliari, Italy  
Nationality: Italian  
Family Status: Married with one child  
Languages: Italian (mother tongue), English (mastery level)

### **B. Education and Qualifications:**

University of Cagliari, Italy Nov. 1979 - Feb. 1986  
Awarded: Dottore in Ingegneria Chimica [(110/110) cum laude]  
(equivalent to a first class honours master degree in Chemical Engineering)  
Thesis' title: Reduction Kinetics of Hydrometallurgical Residuals with  
Carbon Monoxide - Hydrogen Mixtures

University of Bologna, Italy Jan. 1987 - Sep. 1990  
Awarded: Dottore di Ricerca in Ingegneria Chimica  
(equivalent to Ph. D. in Chemical Engineering)  
Thesis' title: Parametric Sensitivity in Reacting Systems

### **C. Professional Experiences:**

Separate list is available.

### **D. Fellowships, Honors and Recognitions:**

Separate list is available.

### **E. Membership of Professional Societies:**

Italian Chemical Society  
American Society of Combustion Synthesis  
The Combustion Institute  
Italian Association of Chemical Engineering

## Membership of Professional Societies - continued

University Group of Chemical Engineering Researchers  
American Institution of Chemical Engineers  
American Nano Society

### **F. Research Interests:**

Gas-Liquid Reactions and Reactors Engineering  
Self-Propagating High-Temperature Reactions  
Adsorption and Ion Exchange  
Synthesis of Advanced Materials by SHS, FACS, BM and SPS  
Mechanochemical Reactions and Reactors  
Contaminated Sites Remediation  
Toxic Wastes Inertization and Recycling  
Tissue Engineering  
Microalgae Technologies  
Toxicology of Nano-particles and Chemicals using hMSCs  
ISRU and ISFR processes for space exploration

### **G. Participation to financed research projects:**

Separate list is available

### **H. Teaching Experiences:**

|   |                        |
|---|------------------------|
| Dynamics, Control and Instrumentation<br>of Chemical Processes                    | 1990-1991              |
| Principles of Chemical Engineering  | 1991-1992              |
| Principles of Environmental Chemical<br>Engineering                               | 1992-2001              |
| Applied Chemical Kinetics   | 1994-2000              |
| Applied Chemical Kinetics and<br>Transport Phenomena for University Second Degree | 2001-2002              |
| Applied Chemical Kinetics<br>for University First Degree                          | 1999-2000              |
| Industrial Chemistry  | 1996-1997<br>1998-1999 |
| Metallurgy  | 1997-1999              |
| Principles of Environmental Chemical<br>Engineering for University Diploma and    |                        |

### **Teaching Experiences – continued**

|   |                |
|---|----------------|
| First Degree in Environmental Engineering   | 1994-2014      |
| Transport Phenomena for University Second Degree in Environmental Engineering                   | 2002-2006      |
| Biomaterials for University First Degree in Biomedical Eng.                                     | 2005           |
| Transport Phenomena in Biomedical Systems for University First Degree in Biomedical Engineering | 2005           |
| Bio-chemical Engineering (A) for University First Degree in Biomedical Engineering              | 2006 - present |
| Bio-chemical Engineering (B) for University First Degree in Biomedical Engineering              | 2006 - 2013    |
| Transport Phenomena for University First Degree in Chemical Engineering                         | 2014 - present |

#### **I. Seminar, Symposium and Conference Organization:**

Separate list is available

#### **J. Dissertations Directed:**

Separate list is available.

#### **K. Ph.D. Dissertations Directed:**

Separate list is available.

#### **L. Research Associates Supervised:**

Separate list is available.

#### **M. Publications:**

Separate list is available.

#### **N. Books (author or editor):**

Separate list is available.

#### **O. Patents:**

Separate list is available.

#### **P. Presentations at Conferences and Symposia:**

Separate list is available.

**Q. Invited Seminars at Universities and Industries:**

Separate list is available.

**R. References:**

References can be obtained from:

Prof. Giorgio Carta  
Department of Chemical Engineering  
University of Virginia  
Charlottesville, VA 22903, USA

Prof. Vladimir Hlavacek  
Department of Chemical Engineering  
SUNY/Buffalo  
Amherst Campus, Furnas Hall 1003  
Buffalo, N.Y. 14260, USA

Prof. Massimo Morbidelli  
Dipartimento di Chimica Fisica Applicata  
Politecnico di Milano  
Piazza Leonardo da Vinci 32, 20100 Milano, Italy

Prof. Zuhair A. Munir  
Department of Chemical Engineering and Materials Science  
University of California  
Davis, CA 95616-5294

Prof. Arvind Varma  
Department of Chemical Engineering  
University of Purdue  
West Lafayette, IN 47907-2100, USA

## Professional Experiences

- ENICHEM Fellowship, Dipartimento di  
Ingegneria Chimica e Materiali,  
Universita' di Cagliari, Italy Jul. 1986 - Jun. 1987
- Ph.D. Student, Dipartimento di  
Ingegneria Chimica e Materiali,  
Universita' di Cagliari, Italy Apr. 1987 - Dec. 1989
- Visiting Scholar, Department of  
Chemical Engineering, University  
of Notre Dame, USA Jan. 1988 - May. 1988
- Consulting for Raffinerie Metalli  
Capra, Italy Jun. 1988 - June 1989
- Assistant Professor  
Dipartimento di Ingegneria Chimica  
e Materiali, Universita' di  
Cagliari, Italy Mar. 1990 - Oct. 1992
- Visiting Scholar, Department of  
Chemical Engineering, University  
of Notre Dame, USA Jan. 1991 - Mar. 1991  
Jun. 1991 - Sep. 1991
- Visiting Scholar, Department of  
Chemical Engineering, University  
of Notre Dame, USA Feb. 1992, Jun. 1992,  
Sept. 1992, Nov. 1992
- AICHE Journal, Fluid Phase Equilibria, Solid State Sci., Afr. J. Bio.,  
The Chem. Eng. Journal, Chem. Papers, Nano Mat. Nano Tech,  
Ind. Eng. Chem. Research, J. Pet. Tech. Alt. Fuels, J. Mat. Sci. Mat.  
Med., Annali di Chimica, Trans. Inst. Chem. Eng., Desalination,  
IchemE, J. Mat. Science, Chem. Eng. Sci., Chemosphere, Arch. Env.  
Prot. All. Comp., J. Mat. Synth.. Process., Waste Management,  
J. Mat. Res., Env. Chem. Lett., Mat. Chem. Phys., Macromolecules,  
Int. J. Chem. React. Eng., Env. Sci. Tech., Materials Chemistry  
and Physics, Mat. Sci. Eng., Macr. Mat. Eng., Chem. Eng. Trans J.,  
J. Hazardous Materials, J. Chem. Eng. Data, J. Bio. Mat. Bioen.,  
Scripta Materialia, J. Am. Ceram. Soc., J. Mat. Proc. Tech, Tissue  
Eng., Chem. Eng. Proc., Env. Tech., British J. App. Sci. Tech.,  
Mat. Lett., Comp. Sci. Tech, J. Env. Qual., J. Zejiang Univ., Algal  
R., Cer. Int., Prog. En. Comb. Sci., Mat. Char., Eur. Phys. J.,  
Adv. Eng. Mat., Pow. Met., Bioresource Tech., J. Asian Cer. Soc.,  
Indian J. Eng. Mat. Sc., Life Sciences, Materials Rec. Pat. Eng.,  
Afr. J. Microb. Res., J. Astronautical Sciences, Korean J. Chem  
Eng., Brazilian J. Chem. Eng., Energies, J. Chem Eng. Croatia

## Professional Experiences – continued

|   |                        |
|---|------------------------|
| Reviewer  | Sept 1992 – present    |
| Member of the Commission for the establishment of the Environmental Engineering Diploma Curriculum at the Università' di Cagliari, Italy        | Sept. 1992 - May. 1993 |
| Secretary of the Chemical Engineering Degree (Laurea) Council, Università' di Cagliari, Italy   | Nov. 1992 - Sept. 1996 |
| Visiting Scholar, Department of Chemical Engineering, University of Notre Dame, USA   | Feb. 1993              |
| Research Associate, Department of Chemical Engineering, University of Notre Dame, USA   | Jul. 1993 - Nov. 1993  |
| Member of the Scientific Council of the Interuniversity Research Centre on Disordered Systems and Fractals in Chemical Engineering              | May 1993 - present     |
| Chemical Engineering PhD Council  | June 1993 – June 1999  |
| Member of the Commission for the Modification of the Environmental Engineering Degree (Laurea) Curriculum at the Università' di Cagliari, Italy | Mar. 1995 - Sept. 1995 |
| Responsible, European Network Materials Science I.C.P.  | Jun. 1995 - Feb. 1997  |
| Consulting for Masnata Chimici, Italy   | 1995                   |
| Consulting for NUOVA COMSAL S.p.A., Italy   | 1995                   |
| University of Cagliari Representative in the Interuniversity Consortium "Chemistry for the Environment"   | Sept. 1994 – Dec. 2009 |
| Coordinator, Sardinian Branch of Italian Association of Chemical Engineering  | Nov. 1995 – Nov. 2015  |
| Chairman, Interdepartmental Centre of Environmental Science and   |                        |

## Professional Experiences – continued

|   |  |
|---|--|
| Engineering (CINSA)   | Jun. 1996 – Oct. 2004<br>Oct. 2010 – July 2017 |
| Member of the Committee for the selection of Research Associates, Università di Cagliari, Italy   | Jun. 1995, Apr. 1997                           |
| Consulting for Progemisa SpA, Italy   | 1996   |
| Consulting for HYDROCONTROL, Italy  | 1996   |
| Co-Chairman at one session of the IV Int. Conference on Environmental Issues and Waste Management in Energy and Mineral Production, SWEMP '96 | July 1996                                      |
| Director, Cagliari Branch of the Interuniversity Consortium "Chemistry for the Environment"   | July 2001 – present                            |
| Member of the Committee of Chem. Eng. PhD Final Examination   | Dec. 1996                                      |
| University of Cagliari Representative in the Interuniversity Research Center of Metallurgy (CIRM)   | May 1997 – present                             |
| Metallurgical Engineering PhD Council   | June 1997 - Sept. 2006                         |
| Consulting for Crystal Research Corporation, USA  | 1997   |
| Guest Editor for Chemical Engineering Communication   | 1998   |
| Chemical Processes and Materials Area Leader at Center for Advanced Studies in Sardinia (CRS4), Italy   | June 1998 – Jan. 2007                          |
| Consulting for Saeda Sarda Abrasivi ed Affini, Italy  | Jan. 1999 – Jan. 2000                          |
| Member of the Committee for Chem. Eng. PhD Admission  | January 1999                                   |
| Reviewer for Senior Lecturship promotion at the University College of London  | January 1999                                   |

## Professional Experiences – continued

|  |                         |
|--|-------------------------|
| Member of the Founding Committee of International Combustion Synthesis Research Association                                | Feb. 1999               |
| Research Consultant for CNR/TEMPE  | Feb. 1999 – 2000        |
| Chairman of the Session “Separation Technology” at the IV Italian Conference on Chemical and Process Engineering, Florence | May 1999                |
| Member of the International Advisory Committee of the V Int. Symposium on SHS, Moscow                                      | August 1999             |
| Co-Chairman of the Session “Effect of Electric and Electromagnetic Field at the V Int. Symposium on SHS, Moscow            | August 1999             |
| Research associate (E. Medda) supervisor   | Sept. 1999 – Feb. 2000  |
| Supervisor of project by sponsored by Provincia di Cagliari, Assessorato Ambiente, Italy                                   | Sept. 1999- June 2003   |
| Supervisor of the project involving Istituto P. Calamandrei, Italy   | Oct. 1999- June 2000    |
| Coordinator of the Centro Studi sulle Reazioni Autopropaganti (CESRA)  | November 1999 - present |
| Member of the International Scientific Council of the International Journal of SHS   | January 2000-present    |
| Member of the International Advisory Committee of SHS-2001   | February 2000           |
| Founding Member of Cleaner Production Centre (CPC) Italia  | April 2000              |
| DOW Chemical Company Consultant<br>Chemical Recycling of PET: hydrolysis and glycolysis processes                          | May 2000 – Sept. 2000   |
| Member of the Committee for Research Associate (Assegnista) Admission  | June 2000               |



## Professional Experiences – continued

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|---|------------------------|
| Member of the International Advisory Committee of the Fourth International Workshop on Materials Processing at High Gravity           | June 2000              |
| Member of the Board of Directors of Consorzio PROMEA as Consorzio INCA representative   | June 2000 – June 2012  |
| Coordinator of the International PhD program in Environmental Science and Engineering   | July 2000 – Sept. 2010 |
| Coordinator of the International Agreement to jointly award of the International PhD program in Environmental Science and Engineering | July 2000 – March 2015 |
| Comune di Genova Consultant through the Consorzio INCA  | Oct. 2000 – Oct. 2001  |
| Member of the Committee for Research Associate (Assegnista) Admission   | November 2000          |
| Member of the Committee for Metall. Eng. PhD Admission  | December 2000          |
| Member of the Board of Directors of Consorzio La Chimica per l' Ambiente (INCA)   | Jan. 2001 – March 2009 |
| Associate Professor<br>Dipartimento di Ingegneria Chimica e Materiali, Università di Cagliari, Italy                                  | Nov. 1992 - Feb. 2001  |
| President of the Scientific Forum of Cleaner Production Centre (CPC) Italia   | April 2001 – present   |
| Expert for the evaluation of projects submitted to the Italian Space Agency   | April 2001 – present   |
| Chairman of the Session “Separation” at The International Conference Icheap-5   | May 2001               |
| Chairman of the Session “Effect of gravity on materials synthesis and processing” at EUROMAT 2001                                     | June 2001              |

## Professional Experiences – continued

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|--|--------------------------|
| Founding Member of the Interdepartmental<br>Centre Metals in Medicine  | June 2001                |
| Member of the National Committee for<br>Associate Professor promotion  | June 2001 – October 2001 |
| MURST COFIN 2001 Referee   | September 2001           |
| President of the Admission Committee for<br>PhD in Environmental Science and<br>Engineering  | October 2001             |
| Co-Chairman at the International Workshop<br>on “Mechanochemical Processes for the<br>Environment”   | February 2002            |
| Member of the International Advisory<br>Committee of VII International Symposium<br>on SHS   | May 2002                 |
| Member of the Scientific Committee of<br>The International Conference ICheaP-6   | June 2002                |
| Member of the Research Board of Advisors<br>of the American Biographical Institute   | July 2002                |
| Member of the Scientific Board of the<br>Summer School on Contaminated<br>Sites  | Sept. 2002               |
| Member of the Board of Experts for<br>Italian Law Decree 297/1999  | August 2002 - present    |
| Member of the Editor’s Office of the Book<br>Conception of SHS development   | August 2002              |
| Co-Chairman at VII International Conference on<br>Environmental Issues and Waste Management in<br>Energy and Mineral Production, SWEMP ’02 | Sept. 2002               |
| Chairman at the Japan-Italy Joint Symposium on<br>Nanostructured Materials for Structural<br>Applications and Nanodevices                  | Nov. 2002                |
| Member of the Council of Founders of<br>SHS Association (World Academy of Ceramics)  | Dec. 2002                |

## Professional Experiences – continued

|   |            |
|---|------------|
| Reviewer for MIUR/COFIN/2003 projects   | Apr. 2003  |
| Chairman of the Session “Production and properties of materials” at The International Conference Icheap-6 | May 2003   |
| President of the Admission Committee for PhD in Environmental Science and Engineering                     | May 2003   |
| INTAS project Evaluator   | July 2003  |
| Member of the organizing committee of VI Convegno INCA 2003   | Oct. 2003  |
| Member of the Editorial Committee for Chemical Engineering for Foxwell&Davis Italy                        | Sept. 2003 |
| Member of the Committee for Chem. Eng. PhD Evaluation   | Oct. 2003  |
| Member of the Scientific Committee, Convegno Ingegneria e Chimica per l’Ambiente                          | Nov. 2003  |
| Co-Chairman of the Section of materials synthesis and related properties of Convegno GRICU 2004           | Nov. 2003  |
| Member of the International Panel of the 7 <sup>th</sup> World Congress of Chemical Engineering           | Nov. 2003  |
| President of the Admission Committee for PhD in Environmental Science and Engineering                     | Jan. 2004  |
| Member of the Committee for Metallurgical Engineering PhD Evaluation                                      | Feb. 2004  |
| Scientific advisor for PRRIITT Regione Emilia-Romagna   | March 2004 |
| Chairman for the Session Materials Synthesis and Processing at ISCRE 18                                   | May 2004   |
| Member of the Scientific Committee of AIDIC-ICHEAP7   | June 2004  |
| Member of the University of Cagliari Committee for CIVR evaluation  | June 2004  |

## Professional Experiences – continued

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|---|---------------------------|
| Invitation to submit a research project on innovative technology for the treatment of wastes containing dioxins and/or furans by The Dow Chemical Company (USA) | Sept. 2004                |
| Research project evaluator for INTAS  | Oct. 2004                 |
| Vice-Chairman of the Interdepartmental Centre for environmental science and technology (CINSA)  | Nov. 2004 – Sept. 2010    |
| National expert for CIVR evaluation   | Nov. 2004                 |
| Member of the LINCE Laboratory (INSTM)  | Dec. 2004                 |
| Scientific Advisor for Special Session on SHS CIMTEC 2006   | Dec. 2004                 |
| Scientific Advisor for Ministry of Production, Italy  | Dec. 2004 - present       |
| Invited talk at the V Int. Symp. on SPS, USA  | Jan. 2005                 |
| Member of the Committee of Int. Env. Sci. Eng. PhD Final Examination  | Feb. 2005                 |
| Member of the Committee of Metallurgical Eng. PhD Final Examination   | Mar. 2005                 |
| Research project evaluator for US ARMY  | Mar. 2005                 |
| CIVR Reviewer   | May 2005                  |
| Member of the Program Committee of the International Conference “Non-Isothermal Phenomena and Processes”  | May 2005                  |
| Member of the Scientific Committee of the COSMOLAB Consortium   | June 2005 – present       |
| President of the Scientific Committee of C.O.S.M.O. Spaceland   | July 2005 – May 2006      |
| Member of the Committee for Assistant Professor Admission   | November 2005 – Feb. 2006 |
| Member of the Committee for Associate   |                           |

## Professional Experiences – continued

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|--|---------------------------|
| Professor Evaluation   | November 2005 – May 2006  |
| Member of the Programme Committee of<br>The First Mediterranean Congress Chemical<br>Engineering for Environment | December 2005 – Dec. 2006 |
| Testimonial for Banco di Sardegna<br>(reimbursement given to Cancer Research Ass.)                               | January 2006 – June 2007  |
| Member of the Scientific Committee of<br>VIII INCA Consortium Congress   | March 2006                |
| Member of the International Scientific<br>Committee of ICheaP-8  | June 2006                 |
| Member of the International Advisory<br>Committee of SHS – 2007  | June 2006                 |
| Chairman of the MCCEE Session “Remediation<br>of Contaminated sites – Phys. Chem. Tech.”                         | September 2006            |
| Scientific reviewer for Piedmont Region  | Oct. 2006                 |
| Invitation to appoint candidates to the 2008<br>International Ceramic Prize                                      | November 2006             |
| President of the Admission Committee for<br>PhD in Environmental Science and<br>Engineering                      | Dec. 2006 - Dec. 2010     |
| Piedmont Region projects reviewer  | February 2007             |
| CEO of Innovative Materials Srl  | Feb. 2007 – July 2015     |
| Process Engineering and Combustion<br>Area Leader at Center for Advanced<br>Studies in Sardinia (CRS4), Italy    | Feb. 2007 – Oct. 2010     |
| Member of the advisory Committee<br>2 <sup>nd</sup> International Congress on Ceramics                           | March 2007                |
| CNR-DET Cagliari Unit Responsible  | March 2007 - present      |
| MAP project Reviewer   | September 2007            |
| MIUR project Reviewer  | November 2007 - present   |

## Professional Experiences – continued

|  |                         |
|--|-------------------------|
| Provincia di Cagliari (Italy) Consultant for Dioxins formation and fate                      | Sept. 2007 – Dec. 2007  |
| Member of the scientific committee of SORISER  | December 2007 - present |
| Thematic Area Coordinator GRICU Symposium  | January 2008            |
| European Science Foundation peer reviewer  | April 2008 – present    |
| Member of the international scientific committee for the International Conference ICheaP-9   | July 2008               |
| Regione Sardegna – Technical Committee Member Lg 7/2007                                      | July 2008               |
| Member of the Organizing Committee of SHS Session at CIMTEC-2010                             | October 2008            |
| Estonia research projects evaluator  | October 2008            |
| PhD thesis evaluator for Aligarh Muslim University (India)                                   | November 2008           |
| Member of the breast surgery specialization school (University of Cagliari)                  | January 2009 - present  |
| Member of the PhD final evaluation at Turin Polytechnic                                      | January 2009            |
| Member of the Editorial Board of the Open Tissue Engineering & Regenerative Medicine Journal | March 2009 - present    |
| Innocentive solver   | June 2009 - present     |
| CEO of Dense Nanostructured Materials Srl  | July 2009 – April 2015  |
| Evaluator of scientific projects submitted by Companies to Campania Region, Italy            | July 2009               |
| SUN University (Italy) project reviewer  | August 2009             |
| Member of the Advisory Board of the 12 <sup>th</sup> Int Ceramics Congress, CIMTEC 2010      | September 2009          |
| European Commission ex-post evaluator of NMP (F6)  | September 2009          |

## Professional Experiences – continued

|  |   |
|--|---|
| Georgia National Science Foundation reviewer   | October 2009                                |
| Member of the national committee for full professor promotion (INGIND24)               | Jan. 2010–Sept. 2010                        |
| Member of the Editorial Advisory Board of the Open Atmospheric Science Journal         | March 2010 – present                        |
| Member of the International Committee of ICheaP-11                                     | May 2010                                    |
| Referee of Research Projects for Padua University, Italy                               | June 2010                                   |
| Member of the UNICA committee for Assegnista di Ricerca                                | June 2010                                   |
| Evaluator of RIDITT projects for Italian Ministry of Economic Development              | July 2010                                   |
| Evaluator of REACH projects for Italian Ministry of Economic Development               | July 2010                                   |
| Expert invited by Samarco (Brasil)   | August 2010                                 |
| Member of the International Advisory Board of SHS 2011                                 | Sept. 2010                                  |
| Member of the University of Cagliari Board of Directors                                | Oct. 2010–June 2012                         |
| Coordinator of the PhD program in Biomedical Engineering                               | Oct. 2010- Mar. 2016                        |
| Project evaluator for Canada Foundation for Innovation                                 | Jan 2011                                    |
| Bioengineering Program Leader at Center for Advanced Studies in Sardinia (CRS4), Italy | Nov. 2010 – Feb.2013<br>Aug. 2013–July 2015 |
| Member of the PhD defense committee in chemical engineering, Padua University, Italy   | February 2011                               |
| Member of the PhD defense committee in chemical eng., Turin Polytechnic, Italy         | February 2011                               |
| Member of the Board of Directors of Consorzio La Chimica per l’Ambiente (INCA)         | Ju. 2011-Ap. 2014                           |
| Padua University (Italy) project reviewer  | September 2011                              |
| Member of the Scientific Committee of “La Chimica                                      |   |

## Professional Experiences – continued

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|---|-------------------------|
| in Sardegna nell'anno della Chimica"  | Sept. 2011- Oct. 2011   |
| Member of the Editorial Board of ISRN Chemical Engineering  | Nov. 2011 – Feb. 2014   |
| Member of the International Advisory Board of Nonisothermal Phenomena and Processes Int. Conference         | November 2011           |
| President of the committee for COSMIC funding   | January 2012 – present  |
| Reviewer of the International Scientific Committee of BOSICON   | February 2012           |
| Reviewer for the Romanian National Research Council   | May 2012                |
| Member of the IChEaP-11 International Scientific Committee  | June 2012               |
| Coordinator of the PhD program in Innovation Science and Technologies                                       | June 2012 – August 2015 |
| Member of the National Committee for Assistant Professor promotion at the University of Rome                | July 2012               |
| Member of the Int. Advisory Board of SHS 2013   | August 2012             |
| Reviewer for Progetto Bandiera "La Fabbrica del Futuro"   | October 2012            |
| Member of the Editorial Board of Advances in Environmental Research (AER) – An Int. Journal                 | Nov. 2012 – Dec. 2013   |
| Member of the organizing Committee of CMSE2013  | November 2012           |
| Advisory Board Member of the 5 <sup>th</sup> Annual Congress of Regenerative Medicine & Stem Cell-2012      | December 2012           |
| Vice-Coordinator of the Regional Committee to promote the Sardinian Aerospace District                      | Dec. 2012 – Sept. 2013  |
| Member of the Int. Advisory Board of the Special Session "SHS Ceramics" at CIMTEC 2014                      | January 2013            |
| Organizing Committee Member of the Int. Conference Tissue Science-2013                                      | Mach 2013 – Dec. 2013   |
| Member of the Review and Technical Program Committee for CMSE 2013 (II Global Conference on Mat. Sci. Eng.) | May 2013                |



## Professional Experiences – continued

|  |                         |
|--|-------------------------|
| Coordinator of the International Agreement to jointly award the International PhD program in Innovation Science and Technology | July 2013 – Mar. 2016   |
| Member of the International Advisory Committee for AEST 2014 “Int. Conf. on Adv. Envi. Sci. & Tech.”                           | August 2013 – Oct. 2013 |
| Member of the Editorial Board of Journal of Biomaterials and Biomedical Engineering  | August 2013 – present   |
| Chairman of the Board of Directors of Distretto Aerospaziale Sardegna (DASS)   | October 2013 – present  |
| European Editor-in-Chief of Advances in Environmental Research (AER) – An International Journal                                | Jan. 2014 – present     |
| Member of the national committee for assistant professor confirmation (INGIND24)   | Feb. 2014 – present     |
| Member of the Editorial Board of International Scholarly Research Notices  | March 2014 - present    |
| Member of the Reviewers’ Board of Global Conf. on Polymer and Composite Materials (PCM 2014)                                   | March 2014 – May 2014   |
| Chairman Session at National Congress, Space Renaissance Italia  | May 2014                |
| Editorial Board Member Global Journal of Energy Technology Research Updates  | May 2014 – present      |
| Member of the committee for three-years-assistant-professor recruitment at the University of Cagliari (INGIND24)               | May 2014 – July 2014    |
| Member of the Reviewers’ Board of The Global Conference on Materials Science and Engineering (CMSE 2014)                       | June 2014               |
| Member of the Reviewers’ Board of The 3rd International Conference on Biomedical Engineering and Biotechnology (ICBEB 2014)    | June 2014               |
| Member of the committee for the admission to Professional Chemical Engineers of Cagliari Province                              | June 2014               |
| Member of the national committee for associate professor confirmation (INGIND24 - Genova)                                      | June 2014 – July 2014   |

## Professional Experiences – continued

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|---|--------------------------|
| Member of the national committee for full professor recruiting (INGIND24 - Cagliari)      | June 2014 – July 2014    |
| Member of the national committee for associate professor recruiting (INGIND27 - Cagliari) | June 2014 – July 2014    |
| Member of the Editorial Board of Journal of Chemical Engineering Research Updates         | July 2014 – present      |
| Member of the International Committee of ICheaP-12  | August 2014 – May 2015   |
| Member of the national committee for associate professor recruiting (INGIND24 - Salerno)  | August 2014 – Sept. 2014 |
| Member of the Editorial Board of AIMS Bioengineering                                      | August 2014 – present    |
| Member of the Committee for PhD in Innovation Science and Technology admission            | September 2014           |
| Member of the Advisory Board of SINTERCER PROPOSAL No. 316232 - VII FRAMEWORK PROG.       | Oct. 2014 – Dec. 2016    |
| Member of the Organizing Committee of the Conference Tissue – Science 2015                | Oct. 2014 – July 2015    |
| ICheaP-12 Papers' Reviewer  | Oct. 2014 – Dec. 2014    |
| Co-Editor-in-Chief of Journal of Chemical Engineering Research Updates (JCERU)            | Oct. 2014 – present      |
| Referee of Research Projects for Padua University, Italy                                  | Oct. 2014                |
| Member of the Editorial Board of Jacobs Journal of Drug Metabolism and Toxicology         | Nov. 2014 – present      |
| Member of the Editorial Board of Stem Cell and Translational Investigation                | Nov. 2104 – present      |
| PhD Student Assessor, Tshwane University of Technology (South Africa)                     | Nov. 2014 – Mar. 2015    |
| Organizing Committee Member of Tissue Preservation and Biobanking-2015                    | Nov. 2014 – July 2015    |
| Member of the national committee for associate professor recruiting (INGIND25 - Cagliari) | December 2014            |

## Professional Experiences – continued

|   |                        |
|---|------------------------|
| Expert invited by Shota Rustaveli National Science Foundation (Georgia) for scientific projects evaluation                              | March 2015             |
| Member of the national committee for associate professor recruiting (INGIND24 - Cagliari)   | April 2015 – June 2015 |
| Member of the Organizing Committee of the Conference “LA NASCENTE INDUSTRIA DEL VOLO SPAZIALE CIVILE”                                   | April 2015             |
| Member of the Scientific Committee of the International Conference “Space, not war 2016”  | April 2015             |
| Expert for the Incomera project   | April 2015 – present   |
| Member of the Scientific Committee of Space Renaissance Italia  | June 2015 – present    |
| Chairman of the Department of Mechanical, Chemical and Materials Engineering  | July 2015 – present    |
| Member of the national committee for associate professor recruiting (INGIND24 - Cagliari)   | July – Sept. 2015      |
| Referee of Research Projects for Padua University, Italy  | Sept. - Oct. 2015      |
| Member of the Groups of Expert of Evaluation of the Italian Agency for the Evaluation of Universities and Research Institutions (ANVUR) | Sept. 2015 – Feb. 2017 |
| Organizing committee member for Regenerative Medicine-2016  | Sept. 2015             |
| Expert Peer Reviewer for Italian Scientific Evaluation (MIUR)   | Sept. 2015 - present   |
| Member of the national committee for assistant professor (B-type) recruiting (INGIND22 - Cagliari)                                      | Nov. 2015 – Dec. 2015  |
| Management Committee Member to COST Action CA15102 (CRM-Extreme)  | Jan. 2016 – present    |
| Member of the Scientific Committee of SOTACARBO, Italy  | Feb. 2016 – present    |
| Member of Advisory Board of Third International   |                        |

## Professional Experiences – continued

|  |                        |
|--|------------------------|
| Conference NPP-2016  | Feb. 2016 – Nov. 2016  |
| Responsible of ISRU/ISFR activities foreseen in the ERAS project proposed by the Italian Mars Society                                    | Feb. 2016 - present    |
| Reviewer for the Romanian National Plan for Research, Development and Innovation for the period 2015-2020                                | Apr. 2016 - present    |
| Organizing Committee Member of the 8 <sup>th</sup> International Conference on Tissue Science and Regenerative Medicine-2017             | Nov. 2016 – Sept- 2017 |
| Reviewer for ICheaP13 International Scientific Committee   | Dec. 2016 – May 2017   |
| Coordinator of the Committee for Assegnista selection at the University of Cagliari  | Dec. 2016 – Jan. 2017  |
| Member of the Editorial Board of Nanomedicine and Nanotechnology (GBPC Group ePublishing House)  | Jan. 2017 – present    |
| Member of the Scientific Advisory Board of the World Congress of Regenerative Medicine & Stem Cell                                       | Jan. 2017 – Dec. 2018  |
| Member of International Advisory Board of the Focused Session CB-10 "SHS Ceramics" of the International Ceramics Congress at CIMTEC 2018 | Feb. 2017 – Jun. 2018  |
| Editor-in-Chief of Advanced in Materials Research  | Mar. 2017 – Au. 2017   |
| Member of the Editorial Board of the Journal Drug Designing & Development  | Mar. 2017 – present    |
| Member of the Editorial Board of Biosciences Biotechnology Research Asia   | Mar. 2017 – present    |
| Member of the national committee for assistant professor (B-type) recruiting (INGIND24 – Rome – La Sapienza)                             | Mar. 2017 – June 2017  |
| Member of the National Organizing Committee of 25 <sup>th</sup> International Symposium on Chemical Reaction Engineering (ISCRE)         | May 2017 – May 2018    |
| Elected Advisor by the AIDIC Assembly  | June 2017 - present    |
| Member of the Editorial Board of the Journal Technologies  | June 2017 – present    |

## Professional Experiences – continued

|  |                         |
|--|-------------------------|
| Member of the Organizing and Scientific Committees of the International Workshop on SPS, Cagliari, Italy, 2018   | July 2017 – May 2018    |
| Member of the Organizing Committee of Meeting on Chemical and Biochemical Engineering, April 23-24, 2018 in Dubai, UAE                                 | Aug. 2017 – April 2018  |
| Member of the International Scientific Committee of IBIC 2018  | Sept. 2017 – April 2018 |
| Honorable organizing committee member for Tissue Science 2018, Frankfurt (Germany)   | Oct. 2017 – April 2018  |
| Member of the national committee for associate professor recruiting (INGIND26 - Cagliari)  | Oct. 2017 – Nov. 2017   |
| Member of the monitoring committee for space economy at the Italian Ministry of Economic Development   | Oct. 2017 – present     |
| Member of the national committee for assistant professor (A-type) recruiting (INGIND23 – Palermo)  | Oct. 2017 – Dec. 2017   |
| Member of the Organizing Committee of the 4 <sup>th</sup> International Conference on Chemical Engineering, September 17-18, 2018 in Vancouver, Canada | Nov. 2017 – Sept. 2018  |
| Reviewer for the 25 <sup>th</sup> International Symposium on Chemical Reaction Engineering (ISCRE)   | Nov. 2017 – July 2018   |
| Appointed expert in the ICAMCyL (International Center and Advanced Materials and raw materials of Castilla y Leon - Spain) Foundation                  | April 2018 - present    |
| Evaluator for National Agency for Engineers Certification  | May 2018                |
| Member of Space Renaissance (Italian Branch) Board of Directors  | May 2018 – Oct. 2018    |
| Projects' evaluator for Czech Science Foundation   | June 2018 – July 2018   |
| Member of the national committee for full professor recruiting (INGIND27 - Cagliari)   | July 2018               |
| Member of Space Renaissance International  |                         |

## **Professional Experiences – continued**

|   |                        |
|---|------------------------|
| Board of Advisors   | July 2018 – present    |
| University of Cagliari’s Academic Senate Member   | July 2018 – present    |
| Member of the National Civil Protection Committee for the forecasting and prevention of major risks | July 2018 – present    |
| International Advisory Board Member of SHS 2019   | Sep. 2018 – present    |
| Member of the national committee for assistant professor (B-type) recruiting (INGIND22 - Cagliari)  | Sept. 2018 – Oct. 2018 |

## Fellowships, Honors and Recognitions

|  |                       |
|--|-----------------------|
| Enichem Fellowship   | Jul. 1986 - Jun. 1987 |
| Ph. D. Fellowship  | Jan. 1987 - Dec. 1989 |
| C.N.R. Fellowship  | 1991                  |
| C.N.R. Prize   | 1991                  |
| C.N.R. Fellowship  | 1992                  |
| C.N.R. Prize   | 1992                  |
| C.N.R. Fellowship  | 1993                  |
| C.N.R. NATO Fellowship   | 1993                  |
| Outcome of the evaluation of<br>INCA Consortium  | Sept. 1998            |
| C.N.R. NATO Fellowship   | 2000                  |
| Nominee for 500 Leaders of Science   | Dec. 2001             |
| Man of the Year (American Biographical Institute)  | March 2002            |
| Member of the Board of Advisors of the<br>American Biographical Institute                        | April 2002            |
| Invitation for “Who’s Who in Science and Engineering”  | July 2002             |
| Invitation for “Who’s Who in the World”  | February 2003         |
| The Contemporary Who’s Who   | June 2003             |
| Nomination for “The Contemporary Who’s Who”  | October 2003          |
| Outcome of the evaluation of INCA Consortium   | Nov. 2003             |
| Invitation for Who’s Who in the World”   | February 2004         |
| CALARITANA L’Università di Cagliari tra storia<br>e domani di P. Fadda e G. Pisano (pp. 180-182) | April 2004            |
| The Contemporary Who’s Who   | April 2004            |
| Man of the Year (American Biographical Institute)  | June 2004             |

## Fellowships, Honors and Recognitions - continued

|  |                |
|--|----------------|
| SHS Dehalogenation Expert<br>( <a href="http://www.cluin.org/download/remed/542r05006/final_pops_report_web.pdf">http://www.cluin.org/download/remed/542r05006/final_pops_report_web.pdf</a> ) | Dec. 2004      |
| Certification “Who’s Who in the World”   | Jan. 2005      |
| Nomination for the IBC’s Dictionary of International Biography   | 33 August 2005 |
| Nomination as IBC’s International Professional of the Year 2005  | September 2005 |
| Nomination for IBC’s Leading Engineers of the World 2006   | September 2005 |
| Nomination for IBC’s 2000 Outstanding Intellectuals of the 21 <sup>st</sup> Century  | October 2005   |
| Nomination for “Who’s Who in the World”  | October 2005   |
| Nomination for “Who’s Who in Science and Engineering”  | November 2005  |
| Invitation for “IBC’s 21 <sup>st</sup> Century Award for Achievement   | November 2005  |
| Nomination as The Cambridge Blue Book Man of the Year  | December 2005  |
| Citations on R. Paracchini – Cari posterì andate al diavolo  | February 2007  |
| World Leader in SHS  | October 2007   |
| Nomination for “Who’s Who in Science and Engineering”  | August 2010    |
| Nomination for “Scientific Award of Excellence for 2011”   | July 2011      |
| Nomination for “The American Order of Merit”   | August 2011    |
| Nomination for “The Great Minds of the 21 <sup>st</sup> Century”   | August 2011    |
| Nomination for “Man of the Year 2011”  | September 2011 |
| Nomination for “Scientific Award of Excellence for 2011”   | October 2011   |
| Nomination for “International Peace Prize”   | October 2011   |
| Nomination for “2000 Outstanding Intellectuals of the 21 <sup>st</sup> Century”  | November 2011  |
| Journal of the American Ceramic Society Reviewer Recognition   | December 2011  |
| Invitation for Man of the Year 2012 (American Biographical Institute)  | January 2012   |



## **Fellowships, Honors and Recognitions - continued**

|  |                     |
|--|---------------------|
| Invitation for Deputy Director General of the International Biographical Centre for Europe   | February 2012       |
| Nomination as member of TOP 100 Engineers 2012   | February 2012       |
| Nomination to receive Gold Medal for Italy (American Biographical Institute)   | March 2012          |
| Recognition by ISECG (International Space Exploration and Coordination Group) - ISRU (In-Situ Resources Utilization) technologies coordinated by NASA of processes patented in the framework of project COSMIC               | April 2012          |
| Nomination to receive the 2012 Award of Excellence (American Biographical Institute)   | June 2012           |
| Nomination for “Who’s Who in the World”  | March 2013          |
| Recognition of the idea “SulcisAlge” submitted to the International Competition “Ideas for the sustainable Development of Sulcis (Sardinia, Italy)”  | Sept. 2013          |
| Nomination to be included in the publication 2000 Outstanding Intellectuals of the 21 <sup>st</sup> Century  | December 2013       |
| Nomination to receive the 2014 Leading Professionals of the World  | February 2014       |
| Nomination for “Who’s Who in the World”  | April 2014          |
| Nomination as member of TOP 100 Engineers 2014   | April 2014          |
| Nomination for “Man of the Year 2014”  | May 2014            |
| Nomination to receive the 2014 Cambridge Certificate for Outstanding Engineering Achievement   | October 2014        |
| Nomination for “Who’s Who in the World”  | April 2015          |
| Nomination for “Who’s Who in Science and Engineering”  | April 2015          |
| Nomination TOP 100 ENGINEERS   | September 2015      |
| Who’s Who in Science and Engineering   | 2016-2017           |
| Top Italian Scientist (Engineering)<br><a href="http://www.topitalianscientists.org/TIS_HTML/Top_Italian_Scientists_Engineering.htm">http://www.topitalianscientists.org/TIS_HTML/Top_Italian_Scientists_Engineering.htm</a> | Nov. 2016 - present |

## **Fellowships, Honors and Recognitions - continued**

|   |               |
|---|---------------|
| Albert Nelson Marquis Lifetime Achievement Award Winner   | April 2017    |
| Nomination for “Who’s Who in the World”   | July 2017     |
| Nomination for 2018 Albert Nelson Marquis Lifetime Achievement Award  | Dec. 2017     |
| Albert Nelson Marquis Lifetime Achievement Award Winner   | February 2018 |
| Recognition from the University of California, Davis (USA) for seminal contributions to the field of Material Science | May 2018      |
| Nomination for “Who’s Who in the World”   | June 2018     |

## Research projects: participation and/or coordination

(P = participant, C = coordinator)

|   |                 |
|---|-----------------|
| C.N.R. Finalizzato, Italy (45 kEuro)<br>(Liquid-phase catalytic reactors)                         | 1988 - 1991 (P) |
| MURST 60%, Italy  | 1989 (P)        |
| MURST 40%, Italy  | 1989 (P)        |
| NURACHEM (ENICHEM), Italy (15 kEuro)<br>(Oligomerization of propene)                              | 1989 - 1991 (P) |
| MURST 40%, Italy  | 1990 (P)        |
| MURST 60%, Italy  | 1990 (P)        |
| Regione Sardegna, Ass. alla Programmazione, Italy (50 KEuro)<br>(Synthesis of advanced materials) | 1991 - 1993 (C) |
| MURST 60%, Italy  | 1991 (C)        |
| MURST 60%, Italy  | 1992 (C)        |
| MURST 60%, Italy  | 1993 (C)        |
| PRAOIL (AGIP), Italy (15 kEuro)<br>(Optimization of cumene production)                            | 1991 - 1992 (P) |
| MURST 60%, Italy  | 1994 (C)        |
| Masnata Chimici Spa, Italy (5 kEuro)  | 1995 (C)        |
| MURST 60%, Italy  | 1995 (C)        |
| MURST 40%, Italy  | 1996 (C)        |
| MURST 60%, Italy  | 1996 (C)        |
| PROGEMISA, Italy (10 KEuro)<br>(Exploitation of Sardinian natural zeolites)                       | 1996 - 1997 (C) |
| C.N.R. Strategico, Italy (40 kEuro)<br>(Ion-exchange separation processes)                        | 1995 - 1997 (C) |
| MURST 40%, Italy (5 kEuro)  | 1997 (C)        |
| MURST 60%, Italy  | 1997 (C)        |

## Research projects: participation and/or coordination - continued

|   |                 |
|---|-----------------|
| C.N.R. Gruppo Rischi, Italy (45 kEuro)<br>(Industrial wastes recycling through self-propagating reactions)            | 1997 - 1999 (C) |
| Comune di Dorgali (NU), Italy (10 kEuro)  | 1997 (C)        |
| Centro Servizi per le Imprese, Italy  | 1997 - 2000 (C) |
| Centro Sviluppo Materiali, Italy  | 1997 - 2000 (C) |
| C.N.R. Gruppo Rischi, Italy (30 kEuro)<br>(HF and BF <sub>3</sub> monitoring in xylenes production plants)            | 1998 - 1999 (P) |
| Inca International - DOW CHEMICAL, USA (30 kEuro)<br>(Kinetics of terephthalic acid production)                       | 1998 - 1999 (C) |
| Agenzia Spaziale Italiana, Italy (600 k Euro)<br>(SHS, gravity and space applications)                                | 1998 - 2003 (C) |
| C.N.R. Tempe, Italy<br>(CNR Scientific Advisor)   | 1998 - 2003 (C) |
| MURST 60%, Italy (10 kEuro)   | 1998 (C)        |
| European Space Agency, European Community (34 kEuro)<br>(Coordination of SHS European Topical Team)                   | 1998 - 2005 (C) |
| INTAS, European Community (60 kEuro)<br>(Synthesis of advanced composites)  | 1998 - 2000 (C) |
| Regione Sardegna, Assessorato Ambiente, Italy (70 kEuro)<br>(Advanced technologies for industrial waste minimization) | 1998 - 1999 (C) |
| BRITE - DESCO, European Community (35 kEuro)<br>(Synthesis of advanced powders for plasma spraying)                   | 1998 - 2000 (C) |
| Consorzio 21, Italy (80 kEuro)<br>(Field assisted combustion synthesis of advanced materials)                         | 1999 - 2001 (C) |
| Consorzio 21, Italy (70 kEuro)<br>(Sardinian natural adsorbents for environmental applications)                       | 1999 - 2001 (C) |
| C.N.R. Tempe – CNR IENI, Italy<br>(Establishment of a CNR branch in Sardinia)   | 1999 – 2001 (C) |
| MURST 60%, Italy (10 kEuro)   | 1999 (C)        |

## Research projects: participation and/or coordination - continued

|  |                 |
|--|-----------------|
| PON 488 (P1, P2, P3)/INCA, Italy (160 kEuro)<br>(Adsorption and soil remediation)  | 1999 – 2003 (P) |
| CINECA-INSTM, Italy<br>(Modeling of the Field Assisted Combustion Synthesis<br>Technique)                                      | 2000 – 2001 (P) |
| Università di Cagliari, Italy (2500 Euro)<br>(Young Researchers: Roberto Orru')  | 2000 – 2002 (P) |
| Università di Cagliari, Italy (2500 Euro)<br>(Young Researchers: Alberto Cincotti)   | 2000 – 2002 (P) |
| Progemisa SpA, Italy (26 kEuro)<br>(Sardinian Natural Zeolites for Environmental Applications)                                 | 2000 – 2001 (C) |
| Università di Cagliari, Italy (5000 Euro)<br>(Young Researchers: Mariella Sannia)  | 2000 – 2002 (C) |
| MURST National Projects, Italy (87 k Euro)<br>(Reactions and Reactor Engineering of Combustion Synthesis<br>Processes)         | 2001 – 2002 (P) |
| C.N.R. Gruppo Rischì, Italy (80 kEuro)<br>(Industrial wastes recycling and inertization through<br>self-propagating reactions) | 2001 - 2004 (C) |
| Consorzio Promea, Italy (35 kEuro)<br>(Applications of Self-propagating Reactions for the Synthesis<br>of Advanced Materials)  | 2001 – 2003 (P) |
| ACNA Cengio SISIFO project, Italy (96 kEuro)<br>(Advanced soil remediation techniques)   | 2001 – 2004 (P) |
| Inca International - DOW CHEMICAL, USA (20 kEuro)<br>(Kinetics of terephthalic acid production)                                | 2001 - 2004 (C) |
| Provincia di Cagliari, Italy (103 kEuro)<br>(Environmental Rehabilitation of Irvi and Piscinas Rivers)                         | 2001 – 2003 (C) |
| Inca International - DOW CHEMICAL, USA (20 kEuro)<br>(New solvents for alkyl-aromatics oxidation)                              | 2002 - 2004 (C) |
| MIUR PON Project, Italy (2300 kEuro)<br>(Advanced soil remediation techniques)   | 2002 – 2007 (C) |
| MIUR PON Equipment Project, Italy (300 kEuro)<br>(Mobile laboratory for environmental investigations)                          | 2002 – 2005 (C) |

## **Research projects: participation and/or coordination - continued**

|  |                 |
|--|-----------------|
| MIUR PON Education Project SITICON, Italy (150 kEuro)<br>(Soil remediation techniques)                                 | 2002 – 2005 (C) |
| CIPE 488 Promea, Italy (600 kEuro)<br>(Synthesis of Advanced Materials by Mechanochemical<br>and Combustion Reactions) | 2002 – 2004 (C) |
| MIUR/CRS4 Modeling Project, Italy (100 kEuro)<br>(Modeling of complex reacting systems)                                | 2002 - 2004 (C) |
| MIUR/Promea, Italy (75 kEuro)<br>(Combustion Synthesis of Advanced Materials)  | 2002 - 2004 (P) |
| MIUR COFIN 2002, Italy (50 kEuro)<br>(Synthesis of dense nanomaterials)  | 2002-2004 (C)   |
| Regione Autonoma della Sardegna, Italy (5 kEuro)<br>(Self-propagating high-temperature reactions)                      | 2003 (C)        |
| FIRB, Italy (200 kEuro)<br>(Synthesis of nanomaterials)  | 2003-2006 (P)   |
| PRISMA/INSTM, Italy (125 kEuro)<br>(Synthesis of dense materials with nanometric structure)                            | 2004-2005 (C)   |
| Regione Autonoma della Sardegna, Italy (6 kEuro)<br>(Self-propagating high-temperature reactions)                      | 2004-2006 (C)   |
| NAMAMET, VI Program Framework, EU (190 kEuro)<br>(Synthesis of dense materials by SPS)                                 | 2004-2007 (P)   |
| CyberSar, 297 MIUR, Italy (12000 kEuro)<br>(High speed computer platform in Sardinia<br>with scientific applications)  | 2006-2009 (P)   |
| GRIDA3, 297 MIUR, Italy (300 kEuro)<br>(Site remediation technology on grid)   | 2006-2010 (P)   |
| Ecomat Srl, Italy (130 kEuro)<br>(Chemicals from wine by-products)   | 2006-2009 (C)   |
| Corem Srl, Italy (130 kEuro)<br>(Synthesis of dense materials by SPS)  | 2006-2009 (C)   |
| MIUR, Cofin 2006, Italy (66 kEuro)<br>(Tissue engineering)   | 2007-2009 (C)   |

## **Research projects: participation and/or coordination - continued**

|  |                 |
|--|-----------------|
| MIUR, Public-Private Labs (348 kEuro)<br>(Drug efficiency evaluation)  | 2007-2010 (P)   |
| ARIA Srl, Italy (130 kEuro)<br>(Tissue Engineering)  | 2007-2009 (P)   |
| MIUR, PON Orientamento, CHISS (291 kEuro)<br>(Green chemistry)   | 2007-2009 (P)   |
| RAS, CARDIOSTAM (93 kEuro)<br>(Tissue engineering)   | 2007-2009 (P)   |
| FIRB, Italy (135 kEuro)<br>(SHS powders production)  | 2007-2010 (P)   |
| Banco di Sardegna Foundation, Italy (15 kEuro)<br>(Tissue engineering)   | 2007-2009 (C)   |
| Ministry of Foreign Affairs (10 kEuro)<br>(UHTC)   | 2008-2010 (C)   |
| Sardegna Ricerche (50 kEuro)<br>(UHTC)   | 2008 (P)        |
| COSMIC, ASI, Italy (471 kEuro)<br>(ISRU and ISFR technologies for human space exploration)   | 2009-2013 (C)   |
| MIUR Lg 297 (680 kEuro)<br>(Dense Nanostructured Materials)  | 2010-2015 (C)   |
| Banco di Sardegna Foundation, Italy (10 kEuro)<br>(Tissue engineering)   | 2010-2011 (C)   |
| PIA Regione Sardegna, Italy (500 kEuro)<br>(Synthesis/densification of innovative materials via SPS)   | 2010-2013 (C)   |
| PIA Regione Sardegna, Italy (500 kEuro)<br>(Tissue engineering and regenerative medicine)  | 2010-2013 (C)   |
| Sardinia Research, Italy (262 kEuro)<br>(Decellularization/Cellularization of organs)  | 2010-2011 (P)   |
| MIUR (International Cooperation), Italy (132 kEuro)<br>(Exchange program with Russia within International<br>PhD in Environmental Science and Engineering) | 2010-2012 (C)   |
| ESA/BIC Lazio, European Community and Italy (50 kEuro)<br>(UHTC for non-space applications)  | 2011 - 2014 (C) |

## **Research projects: participation and/or coordination - continued**

|  |                    |
|--|--------------------|
| Eurostar, European Community (264 kEuro)<br>(Novel SPS technology FAST <sup>2</sup> – SEPROFAST)   | 2011 – 2014 (P)    |
| Sardinian Regional Government, Italy (160 kEuro)<br>(Development of HAp composites)  | 2012 – 2015 (P)    |
| Banco di Sardegna Foundation, Italy (10 kEuro)<br>(New model for acute toxicity tests with hMSCs)  | 2013 - 2016 (C)    |
| MIUR – FIRB, Italy (182 kEuro)<br>(Innovative materials for solar thermodynamic technology)  | 2013 – 2017 (P)    |
| Sardinian Regional Government, Italy (299 kEuro)<br>(Use of hMSC for toxicity tests of nanopowders)  | 2013 – 2016 (C)    |
| INNOVARE project BIOPILOT, Italy (217 kEuro)<br>(CO <sub>2</sub> sequestration and bio-oil production through microalgae)  | 2014 – 2015 (C)    |
| Avio SpA, Italy (67 kEuro)<br>(Development of UHTC materials for applications related to the VEGA launcher)  | 2015 – 2016 (C)    |
| Fondazione di Sardegna - Regional Government, Italy (123 kEuro)<br>(Fabrication, characterization and modelling of NANoporous METal FOAMS - NAMEFOAMS)             | 2017- present (C)  |
| Matrica SpA, Italy (20 kEuro)<br>(Crystallization kinetics of azelaic acid)  | 2016 - present (C) |
| Avio SpA, Italy (80 kEuro)<br>(Development of novel C/C processing and modeling of current C/C manufacturing)  | 2017 – present (C) |
| Ente di Governo dell’Ambito della Sardegna, Italy (30 kEuro)<br>(Performance evaluation of five municipal drinking water plants)                                   | 2017 – present (C) |
| Sardegna Ricerche – Cluster Top Down, Italy (374 kEuro)<br>(COMISAR – Sardinian microalgae cultivation for advanced applications)                                  | 2017 – present (C) |
| Sardegna Ricerche – Aerospace Announcement, Italy (700 kEuro)<br>(Development of a novel testing system for ultra high temperature materials for space propulsion) | 2018 – present (C) |



## Seminar, Symposium and Conference Organization

|   |              |
|---|--------------|
| Workshop on Advanced Chemical Technology  | June 1995    |
| Seminar by Prof. A. M. Merzhanov, Russian Academy of Sciences   | April 1996   |
| First Italian Workshop on Combustion Synthesis of Materials   | July 1997    |
| Seminar by Prof. Zuhair A. Munir, University of California, Davis, USA                                      | Sep. 1997    |
| V Seminar on Catalysis  | June 1998    |
| Seminar by Prof. Arvind Varma, University of Notre Dame, Notre Dame, USA                                    | July 1998    |
| Working Party of the European Federation of Chemical Engineering on Distillation, Absorption and Extraction | Oct. 1998    |
| Seminar by Prof. Vladimir Hlavacek, University of SUNY/BUFFALO, Buffalo                                     | June 1999    |
| Seminar by Prof. Pietro Tundo, University of Venezia  | Jan. 2000    |
| Workshop AIDIC SARDEGNA<br>"Costruire uno sviluppo sostenibile"   | Mar. 2001    |
| Seminar by Prof. Danilo De Rossi, University of Pisa  | Nov. 2001    |
| Seminar by Prof. Mostafa Maalmi, ENIM, Morocco  | Oct. 2002    |
| Seminar by Prof. Gerardo Catapano, University of Calabria   | Oct. 2002    |
| Seminar by Prof. Sergey G. Zlotin, Russian Academy of Sciences  | Nov. 2002    |
| Seminar by Dr Alberto Mariani, University of Sassari,   | Jan. 2003    |
| Seminar by Prof. Luigi Monsù Scolaro, University of Messina   | Jan. 2003    |
| Seminar by Dr. Sergio Daolio, CNR-IENI  | May 2003     |
| Seminar by Prof. Maurizio Petruccioli, University Tuscia  | July 2004    |
| Seminar by Prof. Franco Baldi, University of Venice   | Oct. 2004    |
| VIII International Symposium on SHS   | June 2005    |
| Seminar by Ing. Carlo Viberti (C.O.S.M.O. Spaceland)  | October 2005 |

## Seminar, Symposium and Conference Organization – continued

|   |                |
|---|----------------|
| Seminar by prof. Georgia Valaoras, LIFE projects evaluator, Greece        | January 2006   |
| Seminar by prof. Ana Isabel Miranda, Aveiro University, Portugal          | January 2006   |
| Seminar by Ing. Carlo Viberti, C.O.S.M.O. Spaceland                       | February 2006  |
| Seminar by Dr. Ramanjan Kothandaraman, Indian Institute of Science, India | July 2006      |
| Seminar by prof. Mostafa Maalmi, ENIM, Morocco                            | January 2007   |
| Seminar by prof. A. Boronin, Pushchino University, Russia                 | January 2007   |
| Seminar by prof. Mostafa Maalmi, ENIM, Morocco                            | January 2008   |
| Seminar by prof. Jan Kaspar, Trieste University, Italy                    | January 2008   |
| Seminar by Ing. Carlo Viberti, C.O.S.M.O. Spaceland                       | March 2008     |
| Seminar by Prof. Sara Mantero, Milan Politecnic                           | January 2008   |
| Seminar by prof. Ana Isabel Miranda, Aveiro University, Portugal          | Jan, Sep. 2008 |
| Seminar by prof. F. M. Cardoso Pedrosa, Aveiro University, Portugal       | Jan, Sep. 2008 |
| Seminar by prof. Paolo Bevilacqua, Trieste University, Italy              | Jan.,Sep. 2008 |
| Seminar by prof. Neal Hickey, Trieste University, Italy                   | Sept. 2008     |
| Seminar by prof. A. Boronin, Pushchino University, Russia                 | Jan.,Sep. 2008 |
| Seminar by prof. G. Valaoras, Astrale GEIGE, Greece                       | Jan.,Sep. 2008 |
| National PhD School in Chemical Engineering                               | May 2009       |
| Seminar by prof. Mostafa Maalmi, ENIM, Morocco                            | Sept. 2009     |
| Seminar by prof. F. M. Cardoso Pedrosa, Aveiro University, Portugal       | Sept. 2009     |
| Seminar by Dr. Alexandra Monteiro, Aveiro University, Portugal            | Sept. 2009     |
| Seminar by prof. Paolo Bevilacqua, Trieste University, Italy              | Sept. 2009     |

## **Seminar, Symposium and Conference Organization – continued**

|   |             |
|---|-------------|
| Seminar by prof. A. Boronin, Pushchino University, Russia           | Sept. 2009  |
| Seminar by prof. G. Valaoras, Astrale GEIGE, Greece                 | Sept. 2009  |
| International PhD School in Environmental Science and Engineering   | Sept. 2009  |
| Seminar by prof. J. M. Valverde Millan, Sevilla University, Spain   | July 2010   |
| Seminar by prof. Mostafa Maalmi, ENIM, Morocco                      | Sept. 2010  |
| Seminar by prof. F. M. Cardoso Pedrosa, Aveiro University, Portugal | Sept. 2010  |
| Seminar by Dr. Alexandra Monteiro, Aveiro University, Portugal      | Sept. 2010  |
| Seminar by prof. Paolo Bevilacqua, Trieste University, Italy        | Sept. 2010  |
| Seminar by prof. A. Boronin, Pushchino University, Russia           | Sept. 2010  |
| Seminar by prof. G. Valaoras, Astrale GEIGE, Greece                 | Sept. 2010  |
| International PhD School in Environmental Science and Engineering   | Sept. 2010  |
| Seminar by Dr. Marco Deriu, Politecnico di Torino                   | Mar. 2011   |
| International PhD School in Environmental Science and Engineering   | Sept. 2011  |
| Seminar by prof. F. M. Cardoso Pedrosa, Aveiro University, Portugal | Sept. 2011  |
| Seminar by prof. Paolo Bevilacqua, Trieste University, Italy        | Sept.. 2011 |
| Seminar by prof. A. Boronin, Pushchino University, Russia           | Sept. 2011  |
| Seminar by prof. G. Valaoras, Astrale GEIGE, Greece                 | Sept. 2011  |
| Seminar by prof. Ana Isabel Miranda, Aveiro University, Portugal    | Sept 2011   |
| Seminar by prof. A. Leontyevsky, Pushchino University, Russia       | Sept. 2011  |
| Seminar by prof. M. Vaynsteyn, Pushchino University, Russia         | Sept. 2011  |

## **Seminar, Symposium and Conference Organization – continued**

|   |              |
|---|--------------|
| Seminar by prof. M. Schintu, Cagliari University, Italy           | Sept. 2011   |
| GRICU PhD National School 2011-12-30                              | October 2011 |
| Italian-Russian Workshop  | April 2012   |
| Seminar by Dr Angelo Atzei, Cagliari University, Italy            | June 2012    |
| International PhD School in Environmental Science and Engineering | Sept. 2012   |
| 4 <sup>th</sup> International Workshop on Spark Plasma Sintering  | May 2018     |

## **Dissertations Directed (3 years degree – LB; 2 years – LM; 5 years - L)**

### a. Completed

- 1) Massimo Pisu (1990 L - M. Morbidelli co-advisor):  
Design of Advanced Controllers for a CSTR operating at Unstable Stationary Steady States.
- 2) Roberto Orru' (1991 L - M. Morbidelli co-advisor):  
Experimental Analysis and Modeling of Amino Acids Uptake by Cation Exchange Resins.
- 3) Guido Grosso (1992 L - M. Morbidelli co-advisor):  
Adsorption of Amino Acids by Cation Exchange Resins.
- 4) Stefano Melis (1992 L - M. Morbidelli co-advisor):  
Residence Time Distribution for a Cation Exchange Packed Bed.
- 5) Lucia Caddeo (1993 L - M. Morbidelli and M. Pisu co-advisors):  
Influence of p-Xylene and p-Tolualdeyde Initial Concentration on the p-Xylene Liquid Phase Oxidation.  
(This thesis was recipient of the ENICHEM prize 1993)
- 6) Sonia Sulis (1994 L - M. Pisu co-advisors):  
Liquid Phase Oxidation of p-Xylene to Terephtalic Acid.
- 7) Franco Laconi (1994 L - S. Melis co-advisors):  
Experimental Analysis and Modeling of Amino Acid Sorption by Cation Exchange Resin.
- 8) Salvatore Franzone (1994 L - G. Barrocu and L. Muscas co-advisors):  
Transport and Adsorption of Heavy Metals in Porous Media.
- 9) Alberto Cincotti and Roberto Garau (1994 L - M. Pisu co-advisor):

## Dissertations Directed - continued

Experimental Analysis and Modeling of Liquid Phase Oxidation of p-Xylene to Terephthalic Acid.

10) Pietro Berretta (1995 - M):  
Simulation of the Extraction Section of the Mitsubishi Xylene Separation Process.

11) Davide Carta (1996 M - P. Viridis, R. Orru' and B. Simoncini co-advisor):  
Self-Propagating High-Temperature Synthesis of Advanced Materials.

12) Maria Vittoria Simeone (1996 M - R. Orru' and B. Simoncini co-advisors):  
Self-Propagating Reactions for Industrial Wastes Recycling.

13) Deborah Manca (1996 M - R. Orru' co-advisor):  
Adsorption Equilibria on Sardinian Natural Zeolites.

14) Carlo Broi (1996 M - A. Cincotti co-advisor):  
On the Liquid Phase Oxidation of p-Xylene to Terephthalic Acid.

15) Marcello Murru (1996 M - B. Marongiu and A. Cincotti co-advisors):  
Liquid-Liquid Equilibria involving Hydrocarbons and Formil-Morpholine

16) Bruno Cau (1998 M - R. Orru', M. Sannia, A. Muntoni and M. Monagneddu co-advisors):  
Self-propagating reactions for the treatment of hydrometallurgical wastes  
(This thesis was recipient of the AIM prize 1998)

17) Alessio Marcus (1998 M - R. Orru', M. Sannia, A. Muntoni and M. Monagneddu co-advisors):  
Self-propagating reactions for the treatment of hydrometallurgical wastes

18) Andrea Floris (1998 M - J. MacInnes co-advisor):  
Temperature measurements in laminar flames and modeling studies

19) Cesare Dellacà (1998 M – R. Orrù, P. Serra and R. Lonis co-advisors) Utilization of Sardinian Natural Zeolites for Environmental Applications.

20) Nicola Lai (1998 M - A. Cincotti co-advisor):  
Simulation of the Ammono-oxidation Reactor

21) Gianluca Secci (1998 M - P. Papet co-advisor):  
Chemical microsensors for heavy metal detection in solution

## Dissertations Directed - continued

- 22) Alessandro Concas (1999 L – R. Orru' and M. Sannia co-advisors):  
Environmental applications of Self-propagating reactions
- 23) Maurizio Ligas (2000 - L):  
Effect of catalyst concentration and solvent medium  
on liquid-phase oxidation of p-xylene oxidation
- 24) Antonio Mario Locci (2000 - L):  
Field-assisted combustion synthesis: experimental and modeling
- 25) Stefano Perra (2000 - L):  
Adsorption processes involving natural materials
- 26) Anna Rita Mameli (2000 - L):  
Adsorption Equilibria on Sardinian Natural Zeolites.
- 27) Carlo Patteri (2001 - L):  
Advanced soil remediation techniques
- 28) Aristeo Marras (June 2001 - LB)  
Advanced soil remediation techniques
- 29) Claudia Pizzalis (June 2001 - LB)  
Adsorption processes involving Sardinian Natural Zeolites
- 30) Francesca Sini (December 2001 - LB)  
Characterization and Exploitation of Sardinian Natural Zeolites
- 31) Andrea Atzori (Apr. 2002 - LB):  
Optimization of waelz furnace through simulation tools
- 32) Elisabetta Manis (July 2002 - LB):  
Natural zeolites characterization for environmental applications
- 33) Valeria Piras (July 2002 - LB)  
Combustion synthesis of advanced materials
- 34) Omar Lardieri (Dec. 2002 - LB)  
Natural zeolites characterization for environmental applications
- 35) Claudio Cannas (Feb. 2003 - LB)  
Natural zeolites characterization for environmental applications
- 36) Caterina Frau (Apr. 2003 - LB)  
Gas-liquid Reactions and Reactors
- 37) Simone Saiu (May 2003 - LB)  
Self-propagating reactions for environmental protection

## **Dissertations Directed – continued**

- 38) Stefano Salis (June 2003 - LB)  
Mechanochemical degradation of chloro-organic compounds
- 39) Sara Todde (July 2004 - LB)  
Synthesis of advanced materials by SPS
- 40) Gloria Arangino (July 2004 - LB)  
Synthesis of advanced materials by SPS
- 41) Gianni Tilocca (Sept. 2004 - LB)  
Synthesis of advanced materials by SPS
- 42) Sarah Fadda (April 2005 - LM)  
Synthesis of advanced materials by SHS/BM/SPS
- 43) Fabiana Carta (April 2006 - LM)  
Synthesis of advanced materials by SHS/BM/SPS
- 44) Sarah Todde (December 2007 - LM)  
Synthesis of advanced materials by SHS
- 45) Gianluca Corrias (April 2008 - LM)  
Inertization of heavy metals contaminated soils
- 46) Valeria Bullitta (April 2013 - LB)  
Dialysis at home
- 47) Roberta Piras (April 2013 - LB)  
Simulation of cell processes
- 48) Michela Murgianu (July 2013 - LB)  
Reactors for regenerative medicine
- 49) Silvia Cabras (July 2013 - LB)  
Principles of regenerative medicine
- 50) Federico Desotgiu (July 2013 - LB)  
Materials for regenerative medicine
- 51) Nicola Benizzi (April 2013 - LB)  
Organization of dialysis in hospitals
- 52) Laura Delogu (July 2014 - LB)  
Analysis of the main techniques for articular prosthesis fixation
- 53) Roberto Piu (October 2014 - LM)  
Experimental and modelling of microalgae processes



## **Dissertations Directed – continued**

54) Fabrizio Dessi (October 2014 - LB)  
Analysis of aortic valves technology

55) Gabriele Traversari (October 2014 - LB)  
Bio-artificial systems for liver failure

56) Federica Serra (December 2014 - LB)  
Analysis of the oxygenators' technology

57) Federica Di Prima (April 2015 - LB)  
Analysis of the artificial pancreas

58) Giammarco Aresu (October 2016 - LB)  
Effect of microgravity on organisms and cells

59) Davide Ambu (January 2017 - LM)  
Modeling of chemical vapor deposition processes

b. In progress

## Ph.D. Dissertations Directed

### a. Completed

- 1) Massimo Pisu (1991/1994 - M. Morbidelli co-advisor):  
Gas-Liquid Reactors: the case of p-Xylene Liquid Phase Oxidation.  
Current position: Senior Researcher at CRS4, Italy.
- 2) Laura Muscas (1991/1994 - G. Barrocu co-advisor):  
On the Adsorption and Transport of Lead in Porous Media: Modeling and Experiments.  
Current position: Senior Researcher at CRS4, Italy.
- 3) Andrea Viridis (1992/1996 - A. Viola co-advisor):  
Use of Ozone in drinking and wastewater treatments plants.
- 4) Stefano Melis (1993/1996 - M. Morbidelli co-advisor):  
Adsorption Equilibria and Separation Processes by Cation Exchange Resins.  
Current position: Staff at Albemarle Catalyst Company BV, The Netherlands
- 5) Roberto Orru' (1994/1997 - P. Viridis co-advisor):  
Self-Propagating High-Temperature Synthesis of Ceramic Coatings.  
Current position: Full Professor of Chemical Engineering at the University of Cagliari, Italy.
- 6) Maria Laura Pilia (1994/1997 - A. Viola co-advisor):  
Modeling Systems involving Combustion Phenomena.
- 7) Barbara Simoncini (1995/1998 - R. Orru' co-advisor):  
Self-Propagating High-Temperature Synthesis Applications.
- 8) Alberto Cincotti (1996/1999):  
Experimental Analysis and Modeling of Multiphase Reacting Systems.  
Current position: Associate Professor of Chemical Engineering at the University of Cagliari, Italy.
- 9) Mariella Sannia (1997/2000):  
Self-Propagating High-Temperature Synthesis of Advanced Materials.
- 10) Nicola Lai (1999/2002):  
Multiphase Systems: Experimental Analysis and Modeling.  
Current position: Associate Professor of Electrical and Computer Engineering, Old Dominion University, USA
- 11) Alessandro Concas (2000/2003):  
Advanced technologies for industrial waste minimization and recycling  
Current position: Expert Researcher at CRS4, Italy.
- 12) Roberta Licheri (2001/2003):

## **Ph.D. Dissertations Directed – continued**

Self-Propagating High-Temperature Synthesis: applications  
Current position: Assistant Professor at the University of Cagliari, Italy.

13) Antonio Mario Locci (2001/2003):  
Self-Propagating High-Temperature Synthesis: fundamentals and applications  
Current position: Assistant Professor of Chemical Engineering at the University of Cagliari, Italy

14) Anna Mamei (2001/2003):  
Exploitation of Sardinian Zeolites for Environmental Applications  
Current position: Staff at ECOTEC SpA, Italy

15) Selena Montinaro (2004/2008)  
Contaminated soils remediation by ball milling

16) Sarah Fadda (2005/2009)  
Population balance applications  
Current position: Post doc at Imperial College, United Kingdom

17) Clara Musa (2005/2009)  
Sustainable processes for materials production

18) Sara Todde (2007/2011)  
SPS theory and applications

19) Antonio Lutz (2007/2012)  
Carbon dioxide sequestration  
Current position: Post-doc at Qingdao Institute of Bioenergy and Bioprocess Technology Chinese Academy of Sciences (China)

20) Gianluca Corrias (2008/2012)  
Development of ISRU and ISFR processes for space exploration

21) Michela Scanu (2008/2012)  
Development of new tests in toxicology

22) Alberto Steriti (2010-2014)  
Production of bio-oil from microalgae

23) Luisa Mancuso (2010-2014)  
Organs decellularization/cellularization

24) Alessio Cuccu (2011-2014)  
Sintering of bio-glasses

27) Cristina Costelli (2011-2014)  
Genetic characterization of microalgae

## **Ph.D. Dissertations Directed – continued**

28) Luca Desogus (2014-2016)  
Biological characterization of bio-glasses

### **b. In progress**

29) Santina Soru (2016-present)  
Cultivation of microalgae for CO<sub>2</sub> sequestration and bio-oil production

30) Barbara Lasio (2016-present)  
Synthesis and characterization of innovative materials

31) Marina Luginina (2016-present)  
Biomaterials

32) Giovanna Tallarita (2017 – present)  
Synthesis and densification of novel UHTC materials

33) Blessing Ezealigo (2017 – present)  
Synthesis and densification of novel materials

## Research Associates Supervised

|                                    |                           |
|------------------------------------|---------------------------|
| 1) Roberto Orrù                    | Apr. 1996 – Mar. 1998     |
| 2) Guido Peronetti                 | Jan. 1998 – Jan 2000      |
| 3) Paola Serra                     | Jan. 1998 – Jan. 1999     |
| 4) Davide Zedda                    | Jan. 1998 – Jan. 1999     |
| 5) Maura Muscas                    | Sept. 1998 – Jan. 1999    |
| 6) Esa Toukoniitty, Finland        | July 1998 – Mar. 1999     |
| 7) Zhang Kai, China                | Jan. 1999 – March 1999    |
| 8) Benjamin Hockey, United Kingdom | Nov. 1998 – July 1999     |
| 9) Elena Medda                     | Sept. 1999 – Sept. 2002   |
| 10) Alessandro Concas              | Nov. 1999 – Feb. 2000     |
| 11) Rita Saiu                      | Nov. 1999 – March 2000    |
| 12) Daniela Carta                  | March 2000 – Sept. 2002   |
| 13) Emanuela Fenu                  | March 2000 – June 2000    |
| 14) Roberta Licheri                | March 2000 – Dec. 2000    |
| 16) Mariella Sannia (Post-Doc)     | July 2000 – January 2002  |
| 17) Cincotti Alberto (Assegnista)  | August 2000 – Dec. 2002   |
| 18) Andrea Uda (Assegnista)        | January 2001 – Feb. 2002  |
| 19) Maria Emma Raffatellu          | August 2002 – Dec. 2002   |
| 20) Mauro Porcu                    | September 2002 – Nov.2002 |
| 21) Silvia Caschili                | March 2003 – June 2004    |
| 22) Gian Franco Marras             | March 2004 – Dec.2004     |
| 23) Roberta Licheri                | Jan. 2004 – Dec. 2011     |
| 24) Antonio Locci                  | Jan. 2004 – March 2006    |
| 25) Sarah Fadda                    | June 2005- December 2005  |

### **Research Associates Supervised - continued**

|                          |                          |
|--------------------------|--------------------------|
| 26) Luisa Mancuso        | February 2007 – present  |
| 27) Gianluca Corrias     | May 2008 – August 2017   |
| 28) Gianluigi Caddeo     | July 2008 – March 2009   |
| 29) Ivana Ruvoli         | August 2008 – March 2009 |
| 30) Ilaria Liuzzo        | March 2007 – Dec. 2009   |
| 31) Leila Nikzad, Iran   | Jan. 2012 – June 2012    |
| 32) Mohamed Attia, Egypt | Feb. 2013 – July 2014    |
| 33) Veronica Malavasi    | Sept. 2014 – present     |
| 34) Emad Jarjami, Iran   | Nov. 2014 – May 2015     |
| 35) Joiya Sousa, USA     | Gen. 2017 – July 2017    |
| 36) Myra Afzal, USA      | Aug. 2018 - present      |

## LIST OF PUBLICATIONS: SYNOPSIS (last update November 2018)

Giacomo Cao

|   |             |
|---|-------------|
| Refereed Papers in Scientific Journals (PRJ)    | 198         |
| Refereed Papers in Conference Proceedings (RCP) | 19          |
| Book chapters (BC)                              | 20          |
| Books (B)                                       | 3           |
| Edited Books (EB)                               | 2           |
| Patents (P)                                     | 12          |
| Conference Proceedings (CP)                     | 127         |
| Grand total                                     | 381         |
| Total citations (Scopus / Google Scholar)       | 3656 / 5250 |
| h-index (Scopus / Google Scholar)               | 33 / 40     |

### Full list

1. (PRJ) **G. Cao**, A. Viola, R. Baratti, M. Morbidelli, L. Sanseverino and M. Cruccu, "A Lumped Kinetic Model for Propylene - Butene Mixtures Oligomerization on Supported Phosphoric Acid Catalyst", *Applied Catalysis*, **41**, 301-312 (1988).
2. (PRJ) M. Masi, M. Sangalli, S. Carra', **G. Cao** and M. Morbidelli, "Kinetics of Ethylene Hydrogenation on Supported Platinum", *Chemical Engineering Science*, **43**, 1849-1854 (1988).
3. (PRJ) A. Varma, **G. Cao**, and M. Morbidelli, "Self-Propagating Solid-Solid Noncatalytic Reactions in Finite Pellets", *AIChE Journal*, **36**, 1032-1038 (1990).
4. (PRJ) R. Baratti, **G. Cao**, M. Morbidelli and A. Varma, "Optimal Activity Distribution in Nonuniformly Impregnated Catalyst Particles: Numerical Analysis", *Chemical Engineering Science*, **45**, 1643-1646 (1990).
5. (PRJ) **G. Cao**, A. Varma and M. Morbidelli, "Remarks on Self - Propagating Reactions in Finite Pellets", *AIChE Journal*, **37**, 1420-1424 (1991).
6. (PRJ) O. Cappellazzo, **G. Cao**, R. Messina and M. Morbidelli, "Kinetics of Shape Selective Xylene Isomerization over ZSM-5 Catalyst", *Industrial Engineering Chemistry Research*, **30**, 2280- 2287 (1991).

7. (PRJ) A. Varma, **G. Cao**, J.P. Lebrat and M. Morbidelli, "Self - Propagating Reactions in Finite Pellets: Theory and Experiments", *Inter. J. Self-Prop. High-Temp. Synth.*, **1**, 9-18 (1992).
8. (PRJ) **G. Cao** and M. Morbidelli, "Materiali Ceramici Avanzati Prodotti per Sintesi Autopropagante ad Alta Temperatura", *La Chimica e L' Industria*, **75**, 3-25 (1993).
9. (PRJ) H. Wu, **G. Cao**, M. Morbidelli and S. Carra', "Parametric Sensitivity and Ignition Phenomena in Hydrogen - Oxygen Mixtures", *Journal of Physical Chemistry*, **97**, 8422-8430 (1993).
10. (BC) **G. Cao**, M. Morbidelli and A. Varma, "Thermal Sensitivity and Runaway in Chemical Reacting Systems", NATO ASI E 225 *Chemical Reactor Technology for Environmentally Safe Reactors and Products*, H.I. de Lasa et al. (eds.), Kluwer Academic Publishers, 443-466 (1993).
11. (PRJ) **G. Cao**, A. Varma and W. Strieder, "Approximate Solutions for Nonlinear Gas - Solid Noncatalytic Reactions", *AIChE Journal*, **39**, 913-917 (1993).
12. (PRJ) **G. Cao**, A. Servida, M. Pisu and M. Morbidelli, "Kinetics of p-Xylene Liquid Phase Catalytic Oxidation", *AIChE Journal*, **40**, 1156-1166 (1994).
13. (PRJ) **G. Cao**, M. Pisu and M. Morbidelli, "A Lumped Kinetic Model for Liquid-phase Catalytic Oxidation of p-Xylene to Terephthalic Acid", *Chemical Engineering Science*, **49**, 5775-5788 (1994).
14. (PRJ) K. L. Yeung, R. Aravind, R. J. X. Zawada, J. Szegner, **G. Cao** and A. Varma, "Nonuniform Catalyst Distribution for Inorganic Membrane Reactors: Theoretical Considerations and Preparation Techniques", *Chemical Engineering Science*, **49**, 4823-4838 (1994).
15. (PRJ) **G. Cao** and A. Varma, "A New Expression for Velocity of Combustion Front during Self-Propagating High-Temperature Synthesis", *Combustion Science and Technology*, **102**, 181-191 (1994).
16. (PRJ) **G. Cao**, W. Strieder and A. Varma, "Analysis and Shape Inequalities for Gas - Solid Reactions with Changing Volume", *AIChE Journal*, **41**, 324-336 (1995).
17. (BC) **G. Cao** and A. Varma, "On the Velocity of the Combustion Front during Self-Propagating High-Temperature Synthesis", *Advances in Science and Technology - New Horizons for Materials*, P. Vincenzini Ed., Techna Srl, 177-184 (1995).
18. (PRJ) S. Melis, **G. Cao** and M. Morbidelli, "A New Model for the Simulation of Ion-Exchange Equilibria", *Industrial Engineering Chemistry Research*, **34**, 3916-3924 (1995).
19. (PRJ) R. Orru', B. Simoncini, P. Viridis and **G. Cao**, "Further Studies on a Centrifugal SHS Process for Coating Preparation and Structure Formation in Thermite Reactions", *Inter. J. Self-Prop. High-Temp. Synth.*, **4**, 137-147 (1995).



20. (RCP) R. Orru', **G. Cao** and P. Viridis, "SHS Coatings in the Field of Centrifugal Forces", *Proceedings of EUROMAT 95*, Associazione Italiana di Metallurgia Editore, Milano, Italy, 203-208 (1995).
21. (BC) L. Muscas, C. Paniconi, **G. Cao** and G. Barrocu, "Modellistica dei fenomeni di adsorbimento e trasporto di piombo in mezzi porosi e verifica sperimentale", *Atti del Convegno Internazionale di Geoidrogeologia - a cura di A. Aureli*, Pitagora Editrice Bologna, 113-121 (1995).
22. (RCP) R. Orru', P. Viridis and **G. Cao**, "A Centrifugal SHS Process for the preparation of Coatings", *Proceedings of The Second Italian Conference on Chemical and Process Engineering, AIDIC Conference Series, Vol. I*, ERIS C.T., Milano, 387-394 (1995).
23. (PRJ) A. Viridis, A. Viola and **G. Cao**, "A Novel Kinetic Mechanism of Aqueous Phase Ozone Decomposition", *Annali di Chimica*, **85**, 633-647 (1995).
24. (PRJ) S. Melis, L. Muscas, S. Franzone and **G. Cao**, "Simulation of Lead Adsorption and Transport through a Natural Porous Medium", *Annali di Chimica*, **85**, 621-631 (1995).
25. (PRJ) S. Melis, J. Markos, **G. Cao** and M. Morbidelli, "Multicomponent equilibria on ion-exchange resins", *Fluid Phase Equilibria*, **117**, 2281-2288 (1996).
26. (PRJ) A. Viola and **G. Cao**, "A Rapid Direct Analysis of p-Xylene Oxidation Products by Reverse Phase HPLC", *Journal of Chromatographic Science*, **34**, 27-33 (1996).
27. (PRJ) R. Orru', B. Simoncini, P. F. Viridis and **G. Cao**, "Computer Aided Manufacturing of Centrifugal SHS Coatings", *Computer and Chemical Engineering*, **20**, S1185-S1190 (1996).
28. (RCP) M. L. Pilia, A. Viola and **G. Cao**, "Operation of Fluid Catalytic Cracking Riser Reactors as Light Olefins Generator for the Production of Reformulated Gasoline", *Proceedings of The III International Conference ENERGY AND ENVIRONMENT Towards the Year 2000*, de Costanzo Eds., Naples, 807-818 (1996).
29. (PRJ) S. Melis, J. Markos, **G. Cao** and M. Morbidelli, "Ion Exchange Equilibria of Amino Acids on a Strong Acid Resin", *Industrial Engineering Chemistry Research*, **35**, 1912-1920 (1996).
30. (RCP) S. Melis and **G. Cao**, "A Heterogeneous Model for the Simulation of Ion Exchange Equilibria", *Ion Exchange Developments and Applications*, J.A. Greig (ed.), The Royal Society of Chemistry, Cambridge, 257-265 (1996).
31. (BC) **G. Cao**, "Prediction of Ion Exchange Equilibria in Energy and Mineral Production", *Proc. of the IV International Conference on Environmental Issues and Waste Management in Energy and Mineral Production, SWEMP '96*, R. Ciccu (ed.), Grafiche Galeati, Imola, 447-454 (1996).

32. (PRJ) S. Melis, J. Markos, **G. Cao** and M. Morbidelli, "Separation between Amino Acids and Inorganic Ions through Ion Exchange. Development of a Lumped Model", *Industrial Engineering Chemistry Research*, **35**, 3629-3636 (1996).
33. (PRJ) R. Orru', B. Simoncini, P. F. Viridis and **G. Cao**, "Mechanism of Structure Formation in Self-propagating Thermite Reactions: Comparison between Alumina and Silica as Additive in the Starting Mixture", *Metallurgical Science & Technology*, **14** (2), 69-77 (1996).
34. (PRJ) R. Orru', B. Simoncini, P. F. Viridis and **G. Cao**, "Rivestimenti antiusura ed anticorrosione per sintesi autopropagante ad alta temperatura", *Metallurgia Italiana*, **12**, 753-759 (1996).
35. (PRJ) R. Orru' and **G. Cao**, "Analytical expressions for velocity of the combustion front in gas-solid self-propagating high-temperature reactions with no filtration limitations", *Inter. J. Self-Prop. High-Temp. Synth.*, **5**, 209-222 (1996).
36. (PRJ) R. Orru', B. Simoncini, D. Carta, and **G. Cao**, "On the Mechanism of Structure and Product Formation in Self-propagating Thermite Reactions", *Inter. J. Self-Prop. High-Temp. Synth.*, **6**, 15-27 (1997).
37. (PRJ) R. Orru', B. Simoncini, P. F. Viridis and **G. Cao**, "Self-propagating Thermite Reactions: Effect of Alumina and Silica in the Starting Mixture on the Structure of the Final Products", *Metallurgical Science & Technology*, **15** (1), 31-38 (1997).
38. (PRJ) **G. Cao**, G. Concas, A. Corrias, R. Orru', G. Paschina, B. Simoncini, G. Spano, "Investigation of the Reaction between Ferric Oxide and Aluminum accomplished by Ball Milling and Self-propagating High-temperature Techniques", *Zeitschrift fur Naturforschung-Part a*, 539-549 (1997).
39. (PRJ) A. Cincotti, R. Orru', A. Broi and **G. Cao**, "Effect of catalyst concentration and simulation of precipitation processes on the liquid-phase catalytic oxidation of p-xylene to terephthalic acid", *Chemical Engineering Science*, **52**, 4205-4213 (1997).
40. (BC) B. Simoncini, R. Orru' and **G. Cao**, "An Innovative Approach for Treating and Recycling Zinc Hydrometallurgical Wastes", *Proceedings of the I National Congress - Valorization and Recycling of Industrial Wastes*, Mucchi Editore, 307-314 (1998).
41. (PRJ) R. Orru', B. Simoncini, P. F. Viridis and **G. Cao**, "Mechanism of Structure Formation in Self-Propagating Thermite Reactions: The Case of Alumina as Diluent", *Chemical Engineering Communication*, **163**, 23-36 (1998).
42. (PRJ) A. Gavriilidis, S. Melis and **G. Cao**, "Hydrodemetallation catalyst pellets with nonuniform radial pore size distribution", *Chemical Engineering Communication*, **163**, 37-54 (1998).

43. (PRJ) A. Cincotti, R. Orru' and **G. Cao**, "Kinetics and related engineering aspects of catalytic liquid-phase oxidation of p-xylene to terephthalic acid", *Catalysis Today*, **52**, 331-347 (1999).
44. (PRJ) R. Orru', **G. Cao** and Z. A. Munir, "Mechanistic investigation in the field-activated combustion synthesis (FACS) of titanium aluminides", *Chemical Engineering Science*, **54**, 3349-3355 (1999).
45. (PRJ) R. Orru', M. Sannia, A. Cincotti and **G. Cao**, "Treatment and recycling of zinc hydrometallurgical wastes by self-propagating reactions", *Chemical Engineering Science*, **54**, 3053-3061 (1999).
46. (PRJ) R. Orru', **G. Cao** and Z. A. Munir, "Field-assisted Combustion Synthesis of Titanium Aluminides", *Metallurgical & Materials Transactions A-Physical Metallurgy & Materials Science*, **30A**, 1101-1108 (1999).
47. (PRJ) G. Carta, A. Cincotti and **G. Cao**, "Linear driving force approximation for binary ion exchange", *Separation Science and Technology*, **34**, 1-16 (1999).
48. (RCP) A. Cincotti, R. Orru', M. Sannia, D. Zedda and **G. Cao**, "Combustion front quenching techniques for SHS macrokinetics studies", *Advances in Science and Technology - Ceramics: Getting into the 2000's - Part C*, P. Vincenzini Ed., Techna Srl, Vol. 15, 231-238 (1999).
49. (PRJ) A. Cincotti, M. Murru, **G. Cao**, B. Marongiu, F. Masia and M. Sannia, "Liquid-liquid equilibria of hydrocarbons with n-formylmorpholine", *Journal of Chemical Engineering Data*, **44**, 480-483 (1999).
50. (PRJ) **G. Cao**, S. Doppiu, M. Monagheddu, R. Orru', M. Sannia and G. Cocco, "The thermal and mechanochemical self-propagating degradation of chloro-organic compounds: the case of hexachlorobenzene over calcium hydride", *Industrial Engineering Chemistry Research*, **38**, 3218-3224 (1999).
51. (PRJ) G. Cocco, S. Doppiu, M. Monagheddu, **G. Cao**, R. Orru' and M. Sannia, "Self-propagating high-temperature reduction of toxic chlorinated aromatics", *Int. J. of SHS.*, **8**, 521 - 526 (1999).
52. (RCP) T. Faravelli, A. Goldaniga, E. Ranzi, M. Pisu and **G. Cao**, "Ignition Delay Times and Knocking Tendency of Kerosene", *Proceedings of The Fourth Italian Conference on Chemical and Process Engineering, AIDIC Conference Series, Vol. IV*, ERIS C.T., Milano, 9-16 (1999).
53. (PRJ) V. Kostanyan, H. H. Nersisyan, S. L. Kharatian, D. Zedda, R. Orru' and **G. Cao**, "Chemically Stimulated Combustion in Zr/SiO<sub>2</sub>/C System and Synthesis of ZrO<sub>2</sub>/SiC Composite Ceramic Powders Containing SiC Whiskers" *Int. J. SHS*, vol. 9, N. 4, 387-402 (2000)
54. (RCP) R. Orrù, N. Lai, A. Cincotti, **G. Cao**, P. Accardo, M. Boi, and R. Lonis, "Utilization of Sardinian Natural Clinoptilolites for Heavy Metals and Ammonia

Removal”, *IEX2000*, J.A. Greig (ed.), *The Royal Society of Chemistry, Imperial College Press*, 158-165 (2000).

55. (PRJ) **G. Cao**, R. Orrù, A. Cincotti, and E. Medda, “Self-propagating high-temperature reactions: remarks and recent results”, *Recent Research Developments in Chemical Engineering - Transworld Research Network*, **4**, 383-441 (2000).

56. (RCP) M. Pisu, A. Cincotti, R. Orrù, **G. Cao** and Z. A. Munir, “Modeling of electric field-activated self-propagating reactions”, *Proceedings of the International Conference “Mass and Charge Transport in Inorganic Materials”*, P. Vincenzini, V. Buscaglia Eds., 905-912 (2000).

57. (PRJ) M. Sannia, R. Orrù, A. Concas and **G. Cao**, “Self-propagating reactions for environmental protection: Remarks on treatment and recycling of zinc hydrometallurgical wastes”, *Industrial Engineering Chemistry Research*, **40**, 801-807 (2001).

58. (PRJ) R. Orrù, A. Cincotti, **G. Cao** and Z. A. Munir, “Mechanistic investigation of electric field-activated self-propagating reactions: experimental and modeling”, *Chem. Eng. Sci.*, **56**, 683-692 (2001).

59. (PRJ) A.V. Abovyan, H. H. Nersisyan, S. L. Kharatian, R. Orrù, R. Saiu, **G. Cao** and D. Zedda, “Synthesis of alumina – silicon carbide composites by chemically activated self-propagating reactions”, *Ceramics International*, **27**, 163-169 (2001).

60. (RCP) E. Medda, R. Orrù, **G. Cao**, J. Fry, J. Y. Guigné and M. Zell, “Effects of microgravity on high-temperature self-propagating reactions”, *Proceedings of the First International Symposium on Microgravity Research in Physical Sciences and Biotechnology*, ESA SP-454, January 2001, 299-306 (2001).

61. (PRJ) R. Orrù, J. Woolman, **G. Cao** and Z.A. Munir, “The synthesis of dense nanometric MoSi<sub>2</sub> through mechanical and field activation”, *J. of Mater. Research*, **V16 N5**:1439-1448 (2001).

62. (RCP) M. Pisu, A. Cincotti, **G. Cao** and F. Pepe, “Simulation of the effect of mass transfer limitations in complex gas-liquid reactions”, *Proceedings of the International Symposium Reaction Kinetics and Development of Catalytic Processes*, Froment and Waugh Editors, Elsevier, 471-476 (2001).

63. (PRJ) A. Cincotti, G. Murgia, R. Orrù and **G. Cao**, “On the modeling of the copper block front quenching technique to investigate solid-solid self-propagating high-temperature reactions”, *Ind. Eng. Chem. Res.*, **40**, 3451-3458 (2001).

64. (PRJ) A. Cincotti, R. Orrù, M. Pisu and **G. Cao**, “Self-propagating reactions for environmental protection: reactor engineering aspects”, *Industrial Engineering Chemistry Research*, **40**, 5291-5299 (2001).

65. (RCP) A.S. Rogachev, V.N. Sanin, A.E. Sytshev, V.I. Yukhvid, E. Medda, R. Orrù and **G. Cao**, “Self-propagating High-temperature Centrifugal Processing: the case of Cu<sub>2</sub>O-Cu-Al and Cu<sub>2</sub>O-Al Systems”, *Proceedings of the IVth International*

*Workshop on Materials Processing at High Gravity: Processing by Centrifugation*, Liya L. Regel and William R. Wilcox Editors, Kluwer Academic/Plenum Publishers, 201-212 (2001).

66. (PRJ) A. Cincotti, R. Orrù, N. Lai, and **G. Cao**, “Sardinian Natural Clinoptilolites for Heavy Metals and Ammonia Removal: Experimental and Modeling”, *The Chemical Engineering Journal*, **84**, 275-282 (2001).

67. (BC) R. Orrù, F. Delogu, A. Uda, A. Cincotti, A. Locci, R. Licheri, G. Cao, “Tecnologie innovative di sintesi di materiali per applicazioni aerospaziali”, *Atti del Workshop "Materiali per lo spazio: sintesi, metodologie, tecnologie - BONASSOLA (SP)"*, Passerone A. and Muolo M. L. Eds., 79-109 (2001).

68. (BC) A. Concas, C. Patteri, A. Cincotti and **G. Cao**, “Metal contamination from abandoned mining sites: Experimental investigation on possible remediation techniques”, *Proc. of the VII International Conference on Environmental Issues and Waste Management in Energy and Mineral Production, SWEMP '02*, R. Ciccu (ed.), Grafiche Galeati, Imola, 237-242 (2002).

69. (PRJ) A.S. Rogachev, V.N. Sanin, A.E. Sytshev, V.I. Yukhvid, E. Medda, R. Orrù and **G. Cao**, “Influence of Gravity on Self-propagating High-temperature Thermite Reactions: the case of  $\text{Cu}_2\text{O-Cu-Al}$  and  $\text{Cu}_2\text{O-Al}$  Systems”, *Advances in Space Research*, 29, 505-510 (2002).

70. (BC) A. Mameli, A. Cincotti, N. Lai, M. Palomba, R. Orrù and **G. Cao**, “Lead uptake by natural zeolites”, *Proc. of the VII International Conference on Environmental Issues and Waste Management in Energy and Mineral Production, SWEMP '02*, R. Ciccu (ed.), Grafiche Galeati, Imola, 769-775 (2002).

71. (PRJ) **G. Cao** and R. Orrù, “Self-Propagating reactions for environmental protection: State of the art and future directions”, *The Chemical Engineering Journal*, **87**, 239-249 (2002).

72. (BC) D. Carta, R. Orrù and **G. Cao**, “Self-propagating reactions for environmental protection: the case of hazardous wastes and wastes containing asbestos”, *Proc. of the VII International Conference on Environmental Issues and Waste Management in Energy and Mineral Production, SWEMP '02*, R. Ciccu (ed.), Grafiche Galeati, Imola, 265-272 (2002).

73. (RCP) R. Orru', M. Sannia, Z. A. Munir, A. M. Locci and **G. Cao**, "Synthesis of dense nanostructured materials through mechanical and field activation", *CIMTEC 2002*, P. Vincenzini Ed., Techna Srl, 509-516 (2002).

74. (BC) A. Concas, C. Ardaù, P. Zuddas, A. Cristini, S. Soddu, G. Delitala and **G. Cao**, “Characterization of a mining activity contaminated site and remediation hypotheses”, *Proc. of the VII International Conference on Environmental Issues and*

*Waste Management in Energy and Mineral Production, SWEMP '02*, R. Ciccu (ed.), Grafiche Galeati, Imola, 1007-1012 (2002).

75. (PRJ) A. Cincotti, R. Licheri, A. M. Locci, R. Orrù and **G. Cao**, “Combustion Synthesis of novel materials: experimental and modeling”, *J. Chemical Technology and Biotechnology*, **78**, 122-127 (2003).

76. (PRJ) F. Delogu, R. Orrù and **G. Cao**, “A novel macrokinetic approach for mechanochemical reactions”, *Chemical Engineering Science*, **58**, 815-821 (2003).

77. (PRJ) A.M. Locci, R. Orrù, **G. Cao** and Z.A. Munir, “Field-activated pressure-assisted synthesis of NiTi”, *Intermetallics*, **11**, 555-571 (2003).

78. (PRJ) M. Sannia, R. Orrù, J. E. Garay, **G. Cao**, Z.A. Munir, “Effect of phase transformation during high energy milling on field activated synthesis of dense MoSi<sub>2</sub>”, *Materials Science Engineering A*, **345**, 270-277 (2003).

79. (PRJ) R. Licheri, R. Orrù, **G. Cao**, A. Crippa and R. Scholz, “Self-propagating combustion synthesis and plasma deposition of TiC-Fe powders”, *Ceramics International*, **29** (5), 519-526 (2003).

80. (PRJ) A. V. Abovyan, H. H. Nersisyan, S. L. Kharatian, R. Orrù, and **G. Cao**, “The effect of degassing modes on the self-propagating reactions for the silica-aluminum-carbon system in the presence of reaction promoters”, *Ceramics International*, **29**, 175 - 182 (2003).

81. (PRJ) R. Licheri, R. Orrù, **G. Cao**, J. De Wilde, I. A. Beloki, D. J. Jarvis and L. Froyen, “Sintesi autopropagante ad alta temperatura in condizioni di microgravità”, *La Metallurgia Italiana*, **7-8**, 45-52 (2003).

82. (BC) R. Orrù, D. Carta, A. Concas and **G. Cao**, “Self-propagating reactions for environmental protection”, *Book-Conception of SHS, A.G. Merzhanov Editor, Territory Press, Chernogolovka, Russia*, 285-303 (2003).

83. (PRJ) E. Medda, F. Delogu and **G. Cao**, “Synthesis of TiAl<sub>3</sub> by mechanochemical activation and self-propagating combustion reactions”, *Materials Science and Engineering A*, **A361**, 23-28 (2003).

84. (BC) R. Orrù, F. Delogu and **G. Cao**, “Innovative Processes based on Self-propagating Reactions for the Treatment and Recycling of Zinc Hydrometallurgical Wastes and the Degradation of Chlorinated Aromatics”, *Advanced Technologies based on Self-propagating and Mechanochemical Reactions for Environmental Protection*, **G. Cao, F. Delogu and R. Orrù Editors, Research Signpost, Kerala, India**, 45-69 (2003).

85. (PRJ) R. Orrù, A. Cincotti, A. Concas and **G. Cao**, “Development of processes for environmental protection based on self-propagating reactions”, *Environmental Science and Pollution Research*, <http://dx.doi.org/10.1065/espr2001.12.104.9>, **6**, 385-389 (2003).

86. (PRJ) D. Carta, **G. Cao** and C. D'Angeli, "Chemical Recycling of Poly(ethylene terephthalate) (PET) by Hydrolysis and Glycolysis", *Environmental Science and Pollution Research*, <http://dx.doi.org/10.1065/espr2001.12.104.8>, **6**, 390-394 (2003).
87. (PRJ) M. Pisu, N. Lai, A. Cincotti, F. Delogu and **G. Cao**, "A simulation model for the growth of engineered cartilage on polymeric scaffolds", *International Journal of Chemical Reactor Engineering*, <http://www.bepress.com/ijcre/vol1/A38> (2003).
88. (PRJ) A.M. Locci, A. Cincotti, F. Delogu, R. Orrù, and **G. Cao**, "Modeling of Self-Propagating Reactions: Past Approaches And Future Directions", *International Journal of SHS*, **12**, 61-90 (2003).
89. (PRJ) J. De Wilde, L. Froyen, R. Orrù, **G. Cao**, I.A. Beloki, A. E. Sytschev, A.S. Rogachev, D.J. Jarvis, L. Vautmanas, F. Preud'homme and R. Licheri, "Self-propagating high-temperature synthesis of Al-Ti-B in the ISS: reactor design and preliminary evaluation", *International Journal of SHS*, **12 (3)**, 165-177 (2003).
90. (BC) A. Concas and **G. Cao**, "Trattamenti chimico-fisici nella bonifica dei siti contaminati", in *Ricerca, sperimentazione e sviluppo di tecnologie di bonifica di siti contaminati*, P. Canepa and F. Fava Editors, ISBN 88-88214-11-9, 165-189 (2004).
91. (PRJ) R. Licheri, R. Orrù and **G. Cao**, "Chemical Activated Combustion Synthesis of TiC-Ti Composites", *Materials Science and Engineering A*, **367**, 185-197 (2004).
92. (PRJ) A. Concas, C. Patteri, A. Cincotti and **G. Cao**, "Metal contamination from abandoned mining sites: experimental investigation on possible remediation techniques", *Land Contamination and Reclamation*, **12**, 9-20 (2004).
93. (PRJ) M. Porcu, R. Orrù and **G. Cao**, "On the use of industrial scraps for the treatment of zinc hydrometallurgical wastes by self-propagating reactions", *Chemical Engineering Journal*, **99**, 247-256 (2004).
94. (PRJ) M. Pisu, A. Cincotti, **G. Cao** and F. Pepe "Prediction of uncatalyzed calcium bisulfite oxidation under different operating regimes", *Chemical Engineering Research and Design*, **82 (A7)**, 927-932 (2004).
95. (PRJ) A. Mameli, A. Cincotti, N. Lai, C. Crisafulli, S. Scirè, **G. Cao**, "Adsorption of organic compounds onto activated carbons from recycled vegetable biomass", *Annali di Chimica*, **94**, 547-554 (2004).
96. (PRJ) M. Pisu, A. Cincotti, N. Lai, A. Concas and **G. Cao**, "Modeling of Engineered Cartilage Growth In Rotating Bioreactors", *Chemical Engineering Science*, **59**, 5035-5040 (2004).
97. (PRJ) R. Licheri, R. Orrù, A.M. Locci and **G. Cao**, "Combustion synthesis of TiC-metal composites and related plasma spraying deposition", *International Journal of Product Technology*, **20**, 464-478 (2004).

98. (PRJ) A. Locci, A. Cincotti, F. Delogu, R. Orrù and G. Cao, “Advanced modelling of Self-propagating High-temperature Synthesis: the case of the Ti-C system”, *Chemical Engineering Science*, **59**, 5121-5128 (2004).
99. (BC) A. Concas, S. Caschili, F. Delogu and **G. Cao**, “Trattamento chimico-fisico di siti contaminati: il caso della tecnologia meccanochimica”, in *Ricerca e sviluppo di tecnologie di bonifica di siti contaminati*, P. Canepa and F. Fava Editors, ISBN 88-88214-34-8, 179-196 (2004).
100. (PRJ) M. Porcu, R. Orrù, A. Cincotti and **G. Cao**, “Self-propagating reactions for environmental protection: treatment of wastes containing asbestos”, *Industrial Engineering Chemistry Research*, **44**, 85-91 (2005).
101. (PRJ) A. M. Locci, R. Orrù and **G. Cao**, “Simultaneous Spark Plasma Synthesis and Consolidation of WC/Co Composites”, *Journal Material Research*, **20**, 734-741 (2005).
102. (PRJ) A. M. Locci, A. Cincotti, F. Delogu, R. Orrù and **G. Cao**, “Combustion synthesis of metal carbides Part I: model development”, *Journal Material Research*, **20**, 1257-1268 (2005).
103. (PRJ) A. M. Locci, A. Cincotti, F. Delogu, R. Orrù and **G. Cao**, “Combustion synthesis of metal carbides Part II: numerical simulation and comparison with experimental data”, *Journal Material Research*, **20**, 1269-1277 (2005).
104. (PRJ) S. Caschili, F. Delogu and **G. Cao**, “Mechanochemical degradation of aromatic sulfonic acids”, *Annali di Chimica*, **95**, 813-821 (2005).
105. (RCP) R. Licheri, R. Orrù, S. Fadda and **G. Cao**, “Self-Propagating High-Temperature Synthesis of Barium Titanate and Subsequent Densification By Spark Plasma Sintering (Sps)”, *Proceedings of The Fourth Italian Conference on Chemical and Process Engineering, AIDIC Conference Series, Vol. VII*, ERIS C.T., Milano, 189-198 (2005).
106. (PRJ) A. Concas, C. Ardaù, P. Zuddas, A. Cristini and **G. Cao**, “Mobility of heavy metals from tailings to stream waters in a mining activity contaminated site of Sardinia (Italy)”, *Chemosphere*, <http://dx.doi.org/10.1016/j.chemosphere.2005.08.024>, **63**, 244-253 (2006).
107. (PRJ) A. Cincotti, A. Mameli, Antonio M. Locci, R. Orrù and **G. Cao**, “Heavy metals uptake by sardinian natural zeolites: experimental and modeling”, *Industrial Engineering Chemistry Research*, **45**, 1074-1084 (2006).
108. (PRJ) A. Concas, N. Lai, M. Pisu and **G. Cao**, “Modeling of Comminution Processes In Spex Mixer/Mill”, *Chemical Engineering Science*, **61**, 3746-3760 (2006).
109. (PRJ) S. Caschili, F. Delogu, A. Concas, M. Pisu and **G. Cao** “Mechanically induced self propagating reactions: analysis of reactive substrates and degradation of aromatic sulfonic pollutants”, *Chemosphere*, **63**, 987-995 (2006). <http://dx.doi.org/10.1016/j.chemosphere.2005.08.052>



110. (PRJ) A.M. Locci, R. Licheri, R. Orrù, A. Cincotti and **G. Cao**, “Synthesis/Sintering of Dense Carbides-, Borides- and Perovskites- Based Materials by SPS”, *Ceramic Transactions*, **194**, 173-188 (2006).
111. (PRJ) A.M. Locci, R. Orrù, G. Concas and **G. Cao**, “Simultaneous Synthesis and Densification of Bulk MgB<sub>2</sub> Superconductor by Pulsed Electric Current”, *AIChE Journal*, **52(7)**, 2618-2626 (2006).
112. (PRJ) A. M. Locci, R. Orrù, **G. Cao** and Z.A. Munir, “Effect of mechanical activation on simultaneous spark plasma synthesis and densification of TiC-TiB<sub>2</sub> composites”, *Materials Science and Engineering A*, **434(1-2)**, 23-29 (2006).
113. (PRJ) F. Lemoisson, J. De Wilde, R. Orrù, I.A. Beloki, R. Licheri, A. Sytchev, A. Rogachev, **G. Cao**, D.J. Jarvis and L. Froyen, “Titanium diboride – Titanium aluminides composites prepared by SHS under normal and microgravity conditions: a microstructural study”, *Int. J. SHS*, **15** (1), 49 - 61 (2006).
114. (PRJ) A.M. Locci, R. Licheri, R. Orrù, A. Cincotti, **G. Cao**, J. De Wilde, F. Lemoisson, L. Froyen, I.A. Beloki, A.E. Sytschev, A.S. Rogachev, D.J. Jarvis, "Low-Gravity Combustion Synthesis: Theoretical Analysis of Experimental Evidences", *AIChE Journal*, **52**, 3744-3761 (2006).
115. (PRJ) M. Pisu, N. Lai, A. Concas and **G. Cao**, “A Novel Simulation Model For Engineered Cartilage Growth in Static Systems”, *Tissue Engineering*, **12**, 2311-2320 (2006).
116. (BC) A. Concas and **G. Cao**, “Ex-situ chemical/physical treatments of dredged sediments”, *Proceedings of the International Summer School “Innovative approaches to the management and physical & chemical remediation of contaminated sediments”*, P. Canepa and F. Fava Editors, ISBN: 88-88214-32-1, 127-150 (2006).
117. (PRJ) A.M. Locci, R. Licheri, R. Orrù, A. Cincotti, **G. Cao**, “Spark Plasma Synthesis/Sintering of Dense Ceramic, Intermetallic and Composite Materials”, *Advances in Science and Technology*, **45**, 1411-1416 (2006).
118. (PRJ) P. Palmero, A. Locci, J.M. Tulliani, R. Orrù, **G. Cao** and L. Montanaro, “Conventional and SPS sintering of a nanocrystalline alumina: a comparative study”, *Advances in Science and Technology*, **45**, 957-962 (2006).
119. (PRJ) A. M. Locci, R. Orrù, **G. Cao** and Z.A. Munir, “Simultaneous spark plasma synthesis and densification of TiC-TiB<sub>2</sub> composites”, *Journal American Ceramic Society*, **89**, 848-855 (2006).
120. (PRJ) R. Licheri, S. Fadda, R. Orrù, **G. Cao**, V. Buscaglia, “Self-propagating High-temperature Synthesis of Barium Titanate and subsequent densification by Spark Plasma Sintering”, *Journal European Ceramic Society*, **27**, 2245-2253 (2007).
121. (PRJ) S. Montinaro, A. Concas, M. Pisu and **G. Cao**, “Remediation of heavy metals contaminated soils by ball milling”, *Chemosphere*, **67**, 631-639 (2007).

122. (PRJ) A. Cincotti, A. M. Locci, R. Orrù, **G. Cao**, "Modelling of Spark Plasma Sintering/Synthesis apparatus: Temperature, Current and Strain Distribution with no powders", *AIChE Journal*, **53**, 703-719 (2007).
123. (PRJ) M. Pisu, A. Concas and **G. Cao**, "A novel simulation model for stem cells differentiation", *Journal of Biotechnology*, **130**, 171-182 (2007).
124. (BC) A. M. Locci, A. Cincotti, R. Orrù and **G. Cao**, "Advanced modeling of combustion synthesis", *Combustion of Heterogeneous Systems: Fundamentals and Applications*, Research Signpost Publisher, A. Mukasian and K. Martirosyan Editors, 1-39 (2007).
125. (PRJ) A. Concas, S. Montinaro, M. Pisu and **G. Cao**, "Mechanochemical remediation of heavy metals contaminated soils: modelling and experiments", *Chemical Engineering Science*, **62**, 5186 – 5192 (2007).
126. (PRJ) A.M. Locci, R. Licheri, R. Orrù, A. Cincotti and **G. Cao**, "Mechanical and Electric Current Activation of Solid-Solid Reactions for the Synthesis of Fully Dense Advanced Materials", *Chemical Engineering Science*, **62**, 4885-4890 (2007).
127. (PRJ) R. Licheri, R. Orrù, A. M. Locci, A. Cincotti and **G. Cao**, "Sintesi e simultanea sinterizzazione di materiali innovativi mediante Spark Plasma Sintering", *La Chimica e l'Industria*, **99**, 118-127 (2007).
128. (PRJ) R. Licheri, R. Orrù, A. M. Locci, C. Musa, A. Concotti and **G. Cao**, "Sintesi e simultanea densificazione di intermetallici mediante Spark Plasma Sintering", *La Metallurgia Italiana*, 27-34 (2007).
129. (PRJ) G. Neri, A. Bonavita, G. Micali, G. Rizzo, R. Licheri, R. Orrù, and **G. Cao**, "Resistive  $\lambda$ -sensors based on ball milled Fe doped-SrTiO<sub>3</sub> nanopowders obtained by self-propagating high-temperature synthesis (SHS)", *Sensors Sens. Actuators B: Chem.*, **126**, 258-265 (2007).
130. (PRJ) R. Licheri, R. Orrù, A. M. Locci and **G. Cao**, "Efficient Synthesis/Sintering Routes to obtain Fully Dense Ultra High Temperature Ceramics (UHTC)", *Industrial & Engineering Chemistry Research*, **46**, 9087-9096 (2007).
131. (PRJ) R. Orrù, R. Licheri, A.M. Locci, **G. Cao**, J. De Wilde, F. Lemoisson, L. Froyen, I.A. Beloki, , A. Sytchev, A. Rogachev and D.J. Jarvis, "Self-propagating combustion synthesis of intermetallic matrix composites in the ISS", *Microgravity Sciences and Technology*, XIX-5/6, 85-89 (2007).
132. (PRJ) R. Licheri, R. Orrù, A.M. Locci and **G. Cao**, "Efficient Synthesis/Sintering Routes to obtain Fully Dense ZrB<sub>2</sub>-SiC UHTC Materials", *Key Engineering Materials*, **368-372**, 1733-1736 (2008)
133. (PRJ) **G. Cao**, R. Orrù, R. Licheri, A. Cincotti, A. M. Locci, "SHS in Italy: an overview", *International Journal of Self-Propagating High-Temperature Synthesis*, **17**, 76-84 (2008).

134. (PRJ) R. Licheri, R. Orrù, C. Musa and **G. Cao**, “Combination of SHS and SPS Techniques for the Fabrication of Fully Dense ZrB<sub>2</sub>-ZrC-SiC UHTC Composites”, *Materials Letters*, **62**, 432-435 (2008).
135. (PRJ) S. Montinaro, A. Concas, M. Pisu and **G. Cao**, “Trattamento meccanico per l’immobilizzazione di metalli pesanti in suoli contaminati”, *Ingegneria Ambientale*, **47**, 30-43 (2008).
136. (PRJ) M. Pisu, A. Concas, S. Fadda, A. Cincotti and **G. Cao**, “A simulation model for stem cells differentiation into specialized cells of non-connective tissues”, *Computational Biology and Chemistry*, **32**, 338-344 (2008).  
<http://dx.doi.org/10.1016/j.compbiolchem.2008.06.001>
137. (PRJ) S. Montinaro, A. Concas, M. Pisu and **G. Cao**, “Immobilization of heavy metals in contaminated soils through ball milling with and without additives”, *Journal of Chemical Engineering - Environment*, **142**, 271-284 (2008).  
<http://authors.elsevier.com/offsetprints/CEJ5618/dcb0ced541f5fa1a545bcee0e8d78f34>.
138. (PRJ) G. Neri, A. Bonavita, G. Micali, R. Licheri, R. Orrù, **G. Cao**, D. Marzorati E. Merlone Borla, E. Roncari, and A. Sanson, “FeSrTiO<sub>3</sub>-based resistive oxygen sensors for application in diesel engines”, *Sensors and Actuators B: Chem.*, **134**, 647-653 (2008).
139. (PRJ) R. Licheri, R. Orrù, C. Musa, A.M. Locci, **G. Cao**, "Spark Plasma Sintering of UHTC powders obtained by Self-propagating High-temperature Synthesis", *Journal Materials Science*, **43**, 6406-6413 (2008).
140. (PRJ) A.M. Locci, R. Licheri, R. Orrù and **G. Cao**, “Reactive Sintering of Rhenium Diboride by SPS”, *Ceramics International*, **35**, 397-400 (2009).
141. (PRJ) R. Orrù, R. Licheri, A. M. Locci, A. Cincotti and **G. Cao**, “Consolidation/Synthesis of Materials by Electric Current Activated/Assisted Sintering”, *Materials Science & Engineering R: Reports*, **63(4-6)**, 127-287 (2009).  
<http://dx.doi.org/10.1016/j.mser.2008.09.003>
142. (PRJ) C. Musa, R. Licheri, R. Orrù, A. M. Locci and **G. Cao**, “Energy efficiency during conventional and novel sintering processes: the case of Ti-Al<sub>2</sub>O<sub>3</sub>-TiC composites”, *Journal of Cleaner Production*, **17**, 877-882 (2009).  
<http://dx.doi.org/10.1016/j.jclepro.2009.01.012>,
143. (PRJ) R. Licheri, R. Orrù, C. Musa, A.M. Locci and **G. Cao**, “Spark Plasma Sintering of ZrB<sub>2</sub>- and HfB<sub>2</sub>-based Ultra High Temperature Ceramics prepared by SHS”, *Int. J. SHS*, **18**, 15-24 (2009).
144. (PRJ) R. Licheri, R. Orrù, A. M. Locci, C. Musa and **G. Cao**, “Consolidation via Spark Plasma Sintering of HfB<sub>2</sub>/SiC and HfB<sub>2</sub>/HfC/SiC Composite Powders obtained by Self-propagating High-temperature Synthesis”, *Journal of Alloys and Compounds*, **478**, 572–578 (2009). <http://dx.doi.org/10.1016/j.jallcom.2008.11.092>

145. (PRJ) S. Fadda, A. Cincotti, A. Concas, M. Pisu, and **G. Cao**, "Modelling breakage and reagglomeration during fine dry grinding in ball milling devices", *Powder Technology*, **194**, 207-213 (2009).
146. (PRJ) C. Musa, A. M. Locci, R. Licheri, R. Orrù, J. Suffner and **G. Cao**, "Spark plasma sintering of self-propagating high-temperature synthesized  $\text{TiC}_{0.7}/\text{TiB}_2$  powders and detailed characterization of dense product", *Ceramics International*, **35**, 2587-2599 (2009).
147. (PRJ) L. Mancuso, M. I. Liuzzo, S. Fadda, M. Pisu, A. Cincotti, M. Arras, G. La Nasa, A. Concas and **G. Cao**, "Experimental analysis and modeling of in vitro proliferation of mesenchymal stem cells", *Cell Proliferation*, **42**, 602-616 (2009).
148. (PRJ) S. Montinaro, A. Concas, M. Pisu and **G. Cao**, "Rationale of lead immobilization by ball milling in synthetic soils and remediation of heavy metals contaminated tailings", *Chemical Engineering Journal*, **155**, 123-131(2009).  
<http://authors.elsevier.com/offprints/CEJ6442/4dc5ae39f9cd099ef106570979404ba0>
149. (PRJ) C. Musa, R. Orrù, R. Licheri and **G. Cao**, "On the controversial formation of silver diboride: processing of  $\text{Ag}+2\text{B}$  powders by spark plasma sintering", *Physica C*, **469**, 1991-1995 (2009).  
<http://authors.elsevier.com/offprints/PHYSC1250575/0e69bd189876e41b9c1c585e77871ad7>.
150. (PRJ) L. Mancuso, M. I. Liuzzo, S. Fadda, M. Pisu, A. Cincotti, A. Concas and **G. Cao**, "Experimental Analysis and Modelling of Bone Marrow Mesenchymal Cells Proliferation", *Chemical Engineering Science*, **65**, 562-568 (2009).  
<http://dx.doi.org/10.1016/j.ces.2009.06.034>
151. (PRJ) A. Concas, M. Pisu and **G. Cao**, "Novel simulation model of the solar collector of BIOCOIL photobioreactors for  $\text{CO}_2$  sequestration with microalgae", *Chemical Engineering Journal*, **157**, 297-303 (2010).  
<http://dx.doi.org/10.1016/j.cej.2009.10.059>
152. (PRJ) R. Licheri, R. Orrù, C. Musa and **G. Cao**, "Synthesis, densification and characterization of  $\text{TaB}_2\text{-SiC}$  composites", *Ceramics International*, **36** 937-941 (2010). <http://dx.doi.org/10.1016/j.ceramint.2009.10.028>
153. (PRJ) A. Sanson, E. Roncari, R. Licheri, R. Orrù, **G. Cao**, E. Merlone Borla, D. Marzorati, A. Bonavita, G. Micali, and G. Neri, "Influence of processing parameters on the electrical response of screen-printed  $\text{SrFe}_{0.6}\text{Ti}_{0.4}\text{O}_{3-d}$  thick films", *Ceram. Intern.* **36(2)** 521-527 (2010). <http://dx.doi.org/10.1016/j.ceramint.2009.09.028>
154. (PRJ) S. Fadda, A. Cincotti and **G. Cao**, "The effect of cell size distribution during the cooling stage of cryopreservation without CPA", *AIChE Journal*, **56**, 2173-2185, (2010), <http://dx.doi.org/10.1002/aic.12137>.
155. (BC) R. Orrù, R. Licheri, A.M. Locci, **G. Cao** "Mechanochemically activated powders as precursors for Spark Plasma Sintering (SPS) processes", in *High-energy ball milling: Mechanochemical processing of nanopowders*, Edited by M Sopicka-

Lizer, published by Woodhead Publishing Limited, ISBN-13: 978 1 84569 531 6, pp. 275-303 (2010).

156. (PRJ) R. Licheri, R. Orrù, C. Musa and **G. Cao**, “Efficient technologies for the Fabrication of dense TaB<sub>2</sub>-based Ultra High Temperature Ceramics”, *ACS Applied Materials and Interfaces (ACS-AMI)* **2(8)**, 2206-2212 (2010), DOI: 10.1021/am100211

157. (PRJ) J. Suffner, M. Lattemann, H. Hahn, L. Giebeler, C. Hess, I. Garcia Cano, S. Dosta, J. M. Guilemany, C. Musa, A. M. Locci, R. Licheri, R. Orrù and **G. Cao**, “Microstructure Evolution during Spark Plasma Sintering of Metastable (ZrO<sub>2</sub> – 3 mol% Y<sub>2</sub>O<sub>3</sub>) – 20 wt% Al<sub>2</sub>O<sub>3</sub> Composite Powders”, *Journal of the American Ceramic Society*, **93(9)**, 2864-2870 (2010) DOI: 10.1111/j.1551-2916.2010.03752.x

158. (RCP) R. Licheri, R. Orrù, C. Musa, and **G. Cao** “Processing and characterization of Zr-, Hf- and Ta-based Ultra High Temperature Ceramics” *Advances in Science and Technology, Trans Tech Publications, Switzerland* **65**, 118-123 (2010) doi:10.4028/www.scientific.net/AST.65.118

159. (PRJ) L. Mancuso, M. I. Liuzzo, S. Fadda, M. Pisu, A. Cincotti, A. Concas, G. La Nasa and **G. Cao**, “In vitro ovine articular chondrocytes proliferation: experiments and modeling”, *Cell Proliferation*, **43**, 310–320 (2010).

160. (PRJ) L. Mancuso, M. Scanu, M. Pisu, A. Concas and **G. Cao**, “Experimental analysis and modeling of in vitro HUVECs proliferation in the presence of various types of drugs”, *Cell Proliferation*, **43**, 617-628 (2010).

161. (PRJ) R. Licheri, C. Musa, R. Orrù, A. M. Locci and **G. Cao**, “Fabrication of dense Zr-, Hf- and Ta-based Ultra High Temperature Ceramics by combining Self-propagating High-temperature Synthesis and Spark Plasma Sintering”, *Ceramics Transactions*, **212**, 81-91 (2010).

162. (PRJ) A. Cincotti, A.M. Locci, R. Orrù and **G. Cao**, “Simulation of contact resistances influence on temperature distribution during sps experiments”, *Ceramics Transactions*, **212**, 3-17 (2010).

163. (PRJ) A.M. Locci, A. Cincotti, S. Todde, R. Orrù and **G. Cao**, “A methodology to investigate the intrinsic effect of pulsed electric current during Spark Plasma Sintering of electrically conductive powders”, *Science and Technology of Advanced Materials*, **11**, 1-13 (2010) <http://stacks.iop.org/1468-6996/11/045005>

164. (PRJ) M. Scanu, L. Mancuso and **G. Cao**, “Human Mesenchymal Stem Cells for Acute Toxicity Tests”, *Toxicology in vitro*, **25**, 1989-1995 (2011). <http://dx.doi.org/10.1016/j.tiv.2011.07.006> cited in Global Medical Discovery Series

165. (PRJ) C. Musa, R. Orrù, R. Licheri and **G. Cao**, “Spark Plasma Synthesis and Densification of TaB<sub>2</sub> by Pulsed Electric Current Sintering”, *Materials Letters*, **65**, 3080-3082 <http://dx.doi.org/10.1016/j.matlet.2011.06.094> (2011).

166. (PRJ) S. Fadda, A. Cincotti and **G. Cao**, “Rationalizing the equilibration and cooling stages of cryopreservation: the effect of cell size distribution”, *AIChE Journal*, **57**, 1075-1095 (2011).
167. (RCP) S. Todde, R. Licheri, S. Montinaro, R. Orrù and **G. Cao**, “Influence of cryomilling on Spark Plasma Sintering of CoNiCrAlY powders”, *AIDIC Conference Series Vol.10*, 343-352 (2011).
168. (PRJ) G. Corrias, R. Licheri, R. Orrù and **G. Cao**, “Self-propagating High-temperature Synthesis Reactions for ISRU and ISFR Applications”, *Eurasian Chemico-Technological Journal*, **14/3**, (2011).
169. (PRJ) S. Fadda, A. Cincotti and **G. Cao**, “A novel population balance model to investigate the kinetics of in vitro cell proliferation: Part I. Model development”, *Biotechnology & Bioengineering*, **109**, 772-781 (2012).
170. (PRJ) S. Fadda, A. Cincotti and **G. Cao**, “A novel population balance model to investigate the kinetics of in vitro cell proliferation: Part II. Numerical solution, parameters’ determination and model outcomes”, *Biotechnology & Bioengineering*, **109**, 782-796 (2012).
171. (PRJ) G. A. Lutz, A. M. Locci and **G. Cao**, "Effect of medium composition on the growth of *Nannochloris eucaryotum* in batch photobioreactors", *Journal of Biobased Materials and Bioenergy*, **6**, 1-7 (2012).
172. (PRJ) G. Corrias, R. Licheri, R. Orrù and **G. Cao**, “Self-propagating High-temperature Reactions for the Fabrication of Lunar and Martian Physical Assets”, *Acta Astronautica*, **70**, 69-76 (2012).
173. (PRJ) A. Lutz, A. Concas, M. Pisu and G. Cao, “Experimental analysis and novel modeling of semi-batch photobioreactors operated with *Chlorella vulgaris* and fed with 100 % (v/v) CO<sub>2</sub>”, *Chemical Engineering Journal*, **213**, 203-213 (2012).  
<http://dx.doi.org/10.1016/j.cej.2012.09.119>
174. (PRJ) G. Corrias, R. Licheri, R. Orrù and **G. Cao**, “Optimization of the Self-propagating High-temperature Process for the in-situ Fabrication of Lunar Construction Materials”, *Chemical Engineering Journal*, **193-194**, 410-421 (2012).  
<http://dx.doi.org/10.1016/j.cej.2012.04.032>
175. (PRJ) S. Todde, R. Licheri, R. Orrù and **G. Cao**, “Spark Plasma Sintering Processing for the Evaluation of Cryomilled CoNiCrAlY Alloys for High Temperature Applications in Oxidizing Environment”, *Chemical Engineering Journal*, **200-202**, 68-80 (2012).
176. (PRJ) L. Nikzad, R. Licheri, T. Ebadzadeh, R. Orrù and G. Cao, “Effect of Ball Milling on Reactive Spark Plasma Sintering of B<sub>4</sub>C-TiB<sub>2</sub> Composites”, *Ceramics International*, **38**, 6469-6480 (2012).  
<http://dx.doi.org/10.1016/j.ceramint.2012.05.024>

177. (PRJ) L. Nikzad, R. Licheri, R. Orrù and **G. Cao**, “Fabrication and Formation Mechanism of B<sub>4</sub>C-TiB<sub>2</sub> Composite by Reactive Spark Plasma Sintering using Unmilled and Mechanically Activated Reactants”, *Journal American Ceramic Society*, **95**, 3463-3471 (2012).
178. (PRJ) L. Nikzad, R. Licheri, T. Ebadzadeh, R. Orrù and **G. Cao**, “Chemically and Mechanically Activated Combustion Synthesis of B<sub>4</sub>C-TiB<sub>2</sub> Composites”, *International Journal of Refractory Metals and Hard Materials*, **35**, 41-48 (2012). <http://dx.doi.org/10.1016/j.ijrmhm.2012.04.001>
179. (RCP) S. Montinaro, A. Concas, M. Pisu and **G. Cao**, “Remediation of heavy metals contaminated soils by ball milling”, *Chemical Engineering Transactions*, **28**, 187-192, (2012). <http://dx.doi.org/10.3303/CET1228032>
180. (PRJ) M. Pisu, A. Concas and **G. Cao**, “Simulation Models for Stem Cell Differentiation”, *Chemical and Biochemical Engineering Quarterly*, **26**, 435-446 (2012). [http://hrcak.srce.hr/index.php?show=clanak&id\\_clanak\\_jezik=138666](http://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=138666)
181. (PRJ) A. Concas, G. Corrias, R. Orrù, R. Licheri, M. Pisu and **G. Cao**, “Remarks on ISRU and ISFR technologies for manned missions on Moon and Mars”, *Eurasian Chemico-Technological Journal*, **14**, 243-248 (2012).
182. (PRJ) C. Musa, R. Orrù, D. Sciti, L. Silvestroni and **G. Cao**, “Synthesis, consolidation and characterization of monolithic and SiC whiskers reinforced HfB<sub>2</sub> ceramics”, *Journal of the European Ceramic Society*, **33**, 603–614 (2013) <http://dx.doi.org/10.1016/j.jeurceramsoc.2012.10.004>
183. (PRJ) A. Lutz, A. Concas, A. M. Locci and **G. Cao**, “Nannochloris eucaryotum growth in batch photobioreactors: kinetic analysis and use of 100% (v/v) CO<sub>2</sub>”, *Advances in Environmental Research: an International Journal*, **2**, 19-33 (2013).
184. (PRJ) R. Orrù and **G. Cao**, “Comparison of reactive and non-reactive Spark Plasma Sintering routes for the fabrication of monolithic and composite UHTC materials”, *Materials*, **6**, **5**, 1566-1583 (2013).
185. (BC) R. Orrù and **G. Cao**, “Novel Processing Methods based on Self-propagating High-temperature Synthesis (SHS) and Spark Plasma Sintering (SPS) for the Fabrication of Zr-, Hf- and Ta-based UHTCs”, *MAX Phases and Ultra-High Temperature Ceramics for Extreme Environments*, J. Low, Y. Sakka and Chunfeng Hu Editors, 278-302 (2013).
186. (PRJ) C. Musa, R. Licheri, R. Orrù and **G. Cao**, “Fabrication of fully dense UHTC by combining SHS and SPS”, *Eurasian Chemico-Technological Journal*, **15**, 117-126 (2013).
187. (PRJ) G. Corrias, R. Licheri, R. Orrù and **G. Cao**, “Physical assets by SHS in the framework of ISRU and ISFR paradigms for human space missions on the Moon”, *Eurasian Chemico-Technological Journal*, **15**, 133-142 (2013).



188. (RCP) D. Pani, S. Montinaro, E. Trainito and **G. Cao**, “Caves and protected areas in Sardinia (IT): the example of the Grotta del Papa cave system in the Isle of Tavolara”. *Proceedings of the 16th International Congress of Speleology, Brno (Czech Republic)*, ISBN 978-80-87857-07-6, 370-375 (2013).
189. (RCP) A. Concas, M. Pisu and **G. Cao**, “Mathematical Modelling of *Chlorella Vulgaris* Growth in Semi-batch Photobioreactors Fed with Pure CO<sub>2</sub>”, *AIDIC Conference Series Vol. 11*, 121-130 (2013). [DOI:10.3303/ACOS1311013](https://doi.org/10.3303/ACOS1311013)
190. (PRJ) A. Concas, A. Steriti, M. Pisu and **G. Cao**, “Comprehensive modeling and investigation of the effect of iron on the growth rate and lipid accumulation of *Chlorella vulgaris* cultured in batch photobioreactors”, *Bioresource Technology*, **153**, 340-350 (2014). <http://dx.doi.org/10.1016/j.biortech.2013.11.085>
191. (PRJ) C. Musa, R. Licheri, R. Orrù and **G. Cao**, “Synthesis, Sintering and Oxidative Behaviour of HfB<sub>2</sub>-HfSi<sub>2</sub> ceramics”, *Industrial & Engineering Chemistry Research*, **53**, 9101–9108 (2014). <http://pubs.acs.org/doi/pdf/10.1021/ie4032692>
192. (RCP) A. Concas, R. Cusano, M. Orsini, C. Costelli, A. Angius and **G. Cao**, “The role of mathematical modeling and genetic engineering for microalgae based technology”, *Proceedings of the IV International Congress on Green process Engineering, Sevilla (Spain)*, (2014).
193. (BC) R. Orrù and **G. Cao**, “On the Exploitation of Self-propagating High-temperature Synthesis Reactions for Environmental Protection”, *Current Environmental Issues and Challenges*, R. Orrù and G. Cao (eds.), Springer ISBN 978-94-017-8776-5, 169-182 (2014).
194. (BC) A. Concas, M. Pisu and **G. Cao**, “Engineering Aspects related to the Use of Microalgae for bio-fuels production and CO<sub>2</sub> capture from flue gases, *Current Environmental Issue and Challenges*, R. Orrù and G. Cao (eds.), Springer ISBN 978-94-017-8776-5, 73-111 (2014).
195. (PRJ) L. Mancuso and **G. Cao**, “Acute toxicity test of CuO nanoparticles using human Mesenchymal Stem Cells”, *Toxicology Mechanisms and Methods*, **24**, 449-454 (2014) doi: 10.3109/15376516.2014.928920
196. (PRJ) L. Mancuso A. Gualerzi, F. Boschetti, F. Loy, and **G. Cao**, “Decellularized Ovine Arteries as Small-Diameter Vascular Grafts, *Biomedical Materials*, **9**, 045011, 1-9 (2014). [http://iopscience.iop.org/1748-605X/9/4/045011/pdf/1748-605X\\_9\\_4\\_045011.pdf](http://iopscience.iop.org/1748-605X/9/4/045011/pdf/1748-605X_9_4_045011.pdf)
197. (PRJ) A. Steriti, R. Rossi, A. Concas and **G. Cao**, “A novel cell disruption technique to enhance lipid extraction from microalgae”, *Bioresource Technology*, **164**, 70-77 (2014). Cited also in <https://reginnovations.org/>
198. (PRJ) R. Orrù, R. Licheri, C. Musa, and **G. Cao**, “Coupling SHS and SPS processes”, *Advances in Science and Technology*, **88**, 111-120 (2014).



199. (PRJ) M. Pisu, A. Concas and **G. Cao** "A novel quantitative model of cell cycle progression based on cyclin-dependent kinase activity and population balances", *Computational Biology and Chemistry*, **55**, 1-13(2015).  
<http://www.sciencedirect.com/science/article/pii/S1476927115000031>
200. (PRJ) S. Garroni, R. Orrù, F. Delogu and **G. Cao**, "Nanocrystalline yttria: Grain growth depression by thermal annealing in air", *Scripta Materialia*, **104**, 33-36 (2015).
201. (PRJ) R. Licheri, C. Musa, R. Orrù and **G. Cao**, "Influence of the heating rate on the in-situ synthesis and consolidation of ZrB<sub>2</sub> by Reactive Spark Plasma Sintering", *Journal of European Ceramic Society*, **35**, 1129–1137 (2015).
202. (PRJ) M. A. Attia, S. Garroni, D. Chiriu, C. Ricci, F. Delogu, R. Orrù and **G. Cao**, "X-ray induced color change on dense yttria samples obtained by spark plasma sintering", *Chemical Physics Letters*, **618**, 108-113 (2015).
203. (PRJ) A. Concas, M. Pisu and **G. Cao**, "Disruption of microalgal cells for lipid extraction through Fenton reaction: modeling of experiments and remarks on its effect on lipids composition", *Chemical Engineering Journal*, **263**, 392-401 (2015).
204. (PRJ) L. Desogus, A. Cuccu, S. Montinaro, R. Orrù, **G. Cao**, D. Bellucci; A. Sola and V. Cannillo, "Classical Bioglass® and innovative CaO-rich bioglass powders processed by Spark Plasma Sintering: a comparative study", *Journal of the European Ceramic Society*, **35**, 4277–4285 (2015).
205. (PRJ) V. Malavasi and **G. Cao**, "The Sardinian Culture Collection of Algae (SCCA): ex situ conservation of biodiversity and future technological applications", *Nova Hedwigia*, **101**, 3-4, 273-283 (2015).
206. (PRJ) M.A.A. Attia, R. Orrù, F. Delogu, S. Montinaro, S. Garroni, E.M.M. Ewais and **G. Cao**, "Effects of prior annealing on the spark plasma sintering of nanostructured Y<sub>2</sub>O<sub>3</sub> powders", *Journal of the American Ceramic Society*, **98**, 1453-1459 (2015).
207. (PRJ) P. Losi, L. Mancuso, T. Al Kayal, S. Celi, E. Briganti, A. Gualerzi, Silvia Volpi, **G. Cao**, G. Soldani, "Fabrication and characterization of gelatin-based polyurethane vascular graft for tissue-engineering applications", *Biomedical Materials*, **10**, 1-11 (2015).
208. (PRJ) A. Cuccu, S. Montinaro, R. Orrù, **G. Cao**, D. Bellucci, A. Sola and V. Cannillo, "Consolidation of different Hydroxyapatite powders by SPS: optimization of the sintering conditions and characterization of the obtained bulk products", *Ceramics International*, **41**, 725-736 (2015) DOI: 10.1016/j.ceramint.2014.08.131
209. (PRJ) M. Orsini, R. Cusano, C. Costelli, V. Malavasi, A. Concas, A. Angius and **G. Cao**, "Complete genome sequence of chloroplast DNA (cpDNA) of *Chlorella sorokiniana*", *GenBank*, KJ397925 and *Mitochondrial DNA*, (2014) DOI: 10.3109/19401736.2014.919466, **27**(2), 838-839 (2016).
210. (PRJ) M. Orsini, R. Cusano, C. Costelli, V. Malavasi, A. Concas, A. Angius and **G. Cao**, "Complete genome sequence of mitochondrial DNA (mtDNA) of *Chlorella*

sorokiniana”, *GenBank*, KM241869 and *Mitochondrial DNA*, (2014) DOI:10.3109/19401736.2014.953128, **27**(2), 1539-1541 (2016).

211. (PRJ) A. Concas, M. Pisu and **G. Cao**, “A novel mathematical model to simulate the size-structured growth of microalgae strains dividing by multiple fission”, *Chemical Engineering Journal*, **287**, 252–268 (2016).

212. (PRJ) R. Licheri, C. Musa, R. Orrù, **G. Cao**, D. Sciti and L. Silvestroni, “Bulk Monolithic Zirconium and Tantalum Diborides by Reactive and Non-reactive Spark Plasma Sintering”, *Journal of Alloys and Compounds*, **663**, 351-359 (2016). doi:10.1016/j.jallcom.2015.12.096

213. (PRJ) E. Sani, L. Mercatelli, M. Meucci, A. Balbo, C. Musa, R. Licheri, R. Orrù and **G. Cao**, “Optical properties of dense zirconium and tantalum diborides for solar thermal absorbers”, *Renewable Energy*, **91**, 340-346 (2016).

214. (PRJ) M. Orsini, C. Costelli, V. Malavasi, R. Cusano, A. Concas, A. Angius, and **G. Cao**, “Complete sequence and characterization of mitochondrial and chloroplast genome of *Chlorella variabilis* NC64A”, *Mitochondrial DNA*, doi: 10.3109/19401736.2015.1007297, 3128-3130 (2016).

215. (PRJ) A. Concas, V. Malavasi, C. Costelli, P. Fadda, M. Pisu and **G. Cao**, “Autotrophic growth and lipid production of *C. sorokiniana* in lab batch and BIOCOIL photobioreactors: experiments and modelling”, *Bioresource Technology*, **211**, 327–338 (2016).

216. (PRJ) E. Jajarmi, L. Desogus, R. Orrù, S. A. Sajjadi and **G. Cao**, “On the Fabrication of Functional Graded 3Y-PSZ/316L Materials by SPS: Process optimization and characterization of the obtained products”, *Ceramics International*, **42**, 8351-8359 (2016).

217. (PRJ) C. Musa, R. Licheri, R. Orru', **G. Cao**, D. Sciti, L. Silvestroni, L. Zoli, A. Balbo, L. Mercadelli, M. Meucci and E. Sani, “Processing, mechanical and optical properties of additive free ZrC products prepared by spark plasma sintering”, *Materials*, **9**, 489 (2016).

218. (PRJ) A. Murgia, L. Mancuso, C. Manis, P. Caboni and **G. Cao**, “GC-MS Metabolomics of mesenchymal stem cells treated with CuO micro and nanoparticles”, *Toxicology Mechanisms and Methods*, **26**, 611-619 (2016).

219. (PRJ) V. Malavasi, C. Costelli, M. Orsini, R. Cusano, A. Angius and **G. Cao**, “Deep genomic analysis of *Chlorella sorokiniana* SAG 211-8k chloroplast”, *European Journal of Phycology*, **52**, 320-329 (2017).

220. (PRJ) D. Bellucci, L. Desogus, S. Montinaro, R. Orrù, **G. Cao** and V. Cannillo, “Innovative Hydroxyapatite/Bioactive glass composites processed by Spark Plasma Sintering for bone tissue repair”, *Journal European Ceramic Society*, **37**, 1723-1733 (2017). <http://dx.doi.org/10.1016/j.jeurceramsoc.2016.11.012>

221. (PRJ) L. Mancosu, L. Desogus, F. Loy, R. Orrù and **G. Cao**, “In-vitro Behaviour of Different Fully Dense Calcium Phosphate Materials Fabricated by Spark Plasma Sintering”, *Ceramics International*, **43**, 16238-16247 (2017).

222. (PRJ) E. Sani, M. Meucci, L. Mercatelli, A. Balbo, C. Musa, R. Licheri, R. Orrù and **G. Cao**, “Titanium diboride ceramics for solar thermal absorbers”, *Solar Energy Materials and Solar Cells*, **169**, 313-319 (2017).
223. (PRJ) C. Musa, S. Montinaro, R. Licheri, R. Orrù and **G. Cao**, “Tantalum Carbide Products from Chemically-Activated Combustion Synthesis Reactions”, *Ceramics International*, **43**, 12844-12850 (2017).  
<http://www.sciencedirect.com/science/article/pii/S0272884217313901>
224. (PRJ) S. Montinaro, L. Desogus, R. Orrù, S. Garroni, F. Delogu, P. Ricci and **G. Cao**, “A Comprehensive Investigation on Compositional and Structural changes in 45S5 Bioglass products exposed to Simulated Body Fluid”, *Journal of the American Ceramic Society*, **101**, 116-130 (2018).
225. (PRJ) D. Bellucci, R. Salvatori, M. Cannio, M. Luginina, R. Orrù, S. Montinaro, A. Anesi, L. Chiarini, **G. Cao** and V. Cannillo, “Bioglass and bioceramic composites processed by Spark Plasma Sintering (SPS): biological evaluation versus SBF test”, *Biomedical Glasses*, in press (2018).
226. (PRJ) R. Licheri, S. Montinaro, A. Locci, R. Orrù, **G. Cao**, L- Mercatelli, E. Sani, D. Sciti and L. Silvestroni “Ultra-High Temperature Porous Graded Ceramics for Solar Energy Applications”, *Journal European Ceramic Society*, in press (2018).
227. (PRJ) C. Musa, R. Licheri, R. Orrù, **G. Cao**, F. Zanotto, A. Balbo, L- Mercatelli, E. Sani, “Optical characterization of hafnium boride and hafnium carbide-based ceramics for solar energy receivers”, *Solar Energy*, **169**, 111-119 (2018).
228. (PRJ) B. Lasio, F. Torre, R. Orru, **G. Cao**, M. Cabibbo and F. Delogu, “Fabrication of Cu-graphite metal matrix composites by ball milling and spark plasma sintering”, *Materials Letters*, **230**, 199-202 (2018).
229. (PRJ) L. Mancuso, C. Manis, A. Murgia, M. Isola, A. Salis, F. Piras, P. Caboni and **G. Cao**, “Effect of ZnO nanoparticles on human bone marrow mesenchymal stem cells: viability, morphology, particles uptake, cell cycle and metabolites”, *Journal of Toxicology*, submitted for publication (2018).
230. (PRJ) S. Soru, V. Malavasi, A. Concas, P. Caboni and **G. Cao**, “Growth and lipid production of the extremophile microalga *Coccomyxa melkonianii* SCCA048 under nitrogen starvation conditions: modeling and experiments”, *Chemical Engineering Journal*, submitted for publication (2018).
231. (PRJ) A. Zorro, V. Malavasi, **G. Cao** and R. Lavecchia, “Use of cell wall degrading enzymes to improve the recovery of lipids from *Chlorella sorokiniana*”, *Chemical Engineering Journal*, in press (2018).
232. (PRJ) G. Tallarita, R. Licheri, S. Garroni, R. Orrù and **G. Cao**, “Novel Processing Route for the Fabrication of Bulk High-Entropy Metal Diborides”, *Scripta Materialia*, **158**, 100–104 (2019).

233. (PRJ) S. Montinaro, M. Luginina, S. Garroni, R. Orrù, F. Delogu, D. Bellucci, V. Cannillo and **G. Cao**, “Spark Plasma Sintered CaO-rich Bioglass-derived Glass - Ceramics: a Detailed Investigation of their Behaviour during Biological Tests in SBF”, *Journal European Ceramic Society*, submitted for publication (2018).
234. (PRJ) S. Soru, V. Malavasi, P. Caboni, A. Concas and **G. Cao**, “Behavior of the extremophile green alga *Coccomyxa melkonianii* SCCA 048 in terms of lipids production and morphology at different pH values”, *Extremophiles*, in press (2018).
235. (PRJ) C. Musa, R. Licheri, R. Orrù, R. Marocco and **G. Cao**, “Fabrication and Characterization of SiC fiber reinforced HfB<sub>2</sub> Ceramics for Space Propulsion Components”, *Ceramics in Modern Technologies*, in press (2018).
236. (PRJ) A. M. Locci, R. Orrù and **G. Cao**, “Modeling of Electric Current Assisted Sintering: A novel fluid-like approach for the description of powders rheological behavior”, *Chemical Engineering Science*, submitted for publication (2018).
237. (PRJ) A. Concas, G. A. Lutz, M. Pisu and **G. Cao**, “An integrated process based on microalgae technology for biofuels production and wastewaters tertiary treatment: experimental and theoretical analysis”, *Chemical Engineering Journal*, submitted for publication (2018).

## **LIST OF BOOKS (authored or edited)**

1.B

**G.Cao**, M.L. Pilia and A. Viola, “Simulazione modellistica del reattore e del rigeneratore dell’unità FCC”, *Pitagora Editrice Bologna*, 1-96 (2000).

2.EB

Advanced Technologies based on Self-propagating and Mechanochemical Reactions for Environmental Protection, **G. Cao**, F. Delogu and R. Orrù Editors, *Research Signpost, Kerala, India*, 1-100 (2003).

3.B

A.Concas and **G. Cao**, “Tecnologie per la bonifica di siti contaminati”, *Editrice CUEC*, 1-85 (2004).

4.B

**G. Cao**, A. Concas and R. Serra, “Analisi della produzione di rifiuti speciali in Sardegna”, *Editrice CUEC*, 1-203 (2005).

5.EB

Current Environmental Issues and Challenges, R. Orrù and **G. Cao** Editors, Springer ISBN 978-94-017-8776-5 (2014) <http://dx.doi.org/10.1007/978-94-017-8777-2>

## LIST OF PATENTS

1.P

**G. Cao**, R. Licheri and R. Orrù, “Processo per la preparazione di materiali compositi mediante reazioni autopropaganti attivate da polietilentereftalato di riciclo”, *Patent, Applicant: CRS4 Scarl, Italy, 31/08/2001.*

2.P

**G. Cao**, F. Delogu and E. Medda, “Processo per la preparazione di  $TiAl_3$ ”, *Patent, Applicant: CRS4 Scarl, Italy, 09/08/2002.*

3.P

**G. Cao**, R. Orrù and M. Porcu, “ Processo per l’inertizzazione di paragoethite proveniente dall’industria dell’idrometallurgia dello zinco”, *Patent, Applicant: Consorzio INCA, Italy, 06/08/2003.*

4.P

**G. Cao**, A. M. Locci and R. Orrù, “Processo per la preparazione di un prodotto superconduttore a base di diboruro di magnesio e prodotto ottenibile con tale processo”, *Patent, Applicant: Consorzio INSTM, Italy, 12/10/2004*, “Synthesis process to obtain a magnesium diboride based superconductor, and product obtained through such a process” *PCT/EP2005/052857 21/06/2005, Patent Property: I.M. (Innovative Materials) Srl, Italy.*

5.P

**G. Cao**, R. Licheri, A. M. Locci and R. Orrù, “Process for the preparation of dense Ultra-High- Temperature Composite products”, *Patent, Applicant: Università di Cagliari, Italy, PCT/EP2006/061472 10/04/2006, Patent Property: I.M. (Innovative Materials) Srl, Italy.*

6.P

**G. Cao**, A. Concas and S. Montinaro, “Procedimento per l’immobilizzazione di metalli pesanti presenti in suoli naturali, residui e scarti di lavorazione”, *Patent, Applicant: I.M. (Innovative Materials) Srl, Italy, 09/04/2008.*

7.P

**G. Cao** and A. Concas, “Procedimento per la produzione di biopetrolio che prevede l’impiego di  $CO_2$ ”, *Patent MI2008A001802, Applicant: B.T. (Biomedical Tissues) Srl, Italy, 13/10/2008.*

8.P

**G. Cao** and A. Concas, “Process for bio-oil production which makes use of carbon dioxide”, *Application number EP10158619.6, Applicant: B.T. (Biomedical Tissues) Srl, Italy, 31/03/2010.*

9.P

**G. Cao**, A. Concas, G. Corrias, R. Licheri, R. Orrù, M. Pisu and C. Zanotti, “Procedimento di fabbricazione di elementi per strutture abitative e/o industriali sul suolo lunare e/o marziano”, *Patent MI2010A001412, Italy, 29/07/2010.*

10.P

**G. Cao**, A. Concas, G. Corrias, R. Licheri, R. Orrù and M. Pisu, “Procedimento per l’ottenimento di prodotti utili al sostentamento di missioni spaziali sul suolo marziano mediante l’utilizzo di risorse reperibili in situ”, *Patent MI2011A001420*, 28/07/2011.

11.P

**G. Cao**, A. Concas, G. Corrias, R. Licheri, R. Orrù, M. Pisu and C. Zanotti, “Fabrication process of physical assets for civil and/or industrial structures on the surface of Moon, Mars and/or asteroids”, *Patent 10453PTWO*, 28/07/2011.

12.P

**G. Cao**, A. Concas, G. Corrias, R. Licheri, R. Orrù and M. Pisu, “A process for the production of useful materials to sustain manned space missions on Mars through in-situ resources utilization”, *Patent PCT/IB2012/053754*, 24/07/2012.

## PAPERS PRESENTED AT CONFERENCES, SYMPOSIA AND SEMINARS

- 1.C(CP) R. Baratti, **G. Cao** and A. Viola (speaker), "Strategia Dinamica di Costruzione e Adeguamento di Impianti di Trattamento nell' Ambito Regionale", *Atti del Convegno Internazionale - La Qualita' dell'acqua in Sardegna*, 253-273 (1986).
- 2.C R. Baratti, **G.Cao** and A. Viola (speaker), "Problemi Ambientali relativi agli Insediamenti Industriali dell'Area di Portoscuso", Convegno Nazionale - I Problemi Ambientali nel Comprensorio Industriale del Sulcis, Portoscuso (CA), Italy (1986).
- 3.C **G. Cao** (speaker), P. Amat di San Filippo, R. Baratti, M. Morbidelli and A. Viola, "Modello Cinetico", Workshop Enichem - Universita'- Reazioni di Oligomerizzazione per la Produzione di Noneni e Dodeceni, Cagliari, Italy (1986).
- 4.C(CP) A. Viola, **G. Cao**, R. Baratti and M. Morbidelli, "Modeling of Olefin Oligomerization Kinetics", *Atti del VI Simposio Italo - Cecoslovacco di Catalisi, Sanremo, Italy*, 130-133 (1987).
- 5.C(CP) **G. Cao**, A. Viola, R. Baratti and M. Morbidelli, "Analysis and Simulation of a Fe-ZnO Recovery Process from Leaching Residuals", *Proc. of the 2nd International Conference on Environment Protection, CUEN, Napoli*, 4A, 71-78 (1988).
- 6.C **G. Cao** and A. Varma (speaker), "Self-Propagating Solid - Solid Noncatalytic Reactions in Finite Pellets", AIChE Meeting, Washington DC, USA (1988).
- 7.C **G. Cao**, "Dinamica e Stabilita' dei Sistemi Reagenti", Seminario del Dottorato di Ricerca III Ciclo, Rome, Italy (1989).
- 8.C(CP) H. Wu, **G. Cao** and M. Morbidelli, "Catalytic Fixed Bed Reactors", *Proc. of Achemasia 89, International Meeting on Chemical Engineering, Pechino, China*, 53-80 (1989).
- 9.C(CP) **G. Cao**, O. Cappellazzo (speaker), G. Messina and M. Morbidelli, "Isomerizzazione di Xileni su ZSM-5: Analisi Sperimentale e Modellistica", XVIII Convegno Nazionale Div. Chim. Organica, S. Margherita (CA), Italy (1989).
- 10.C(CP) **G. Cao** (speaker), R. Baratti, A. Servida e M. Morbidelli, "Simulazione modellistica nella preparazione di materiali avanzati", Convegno Regionale CMTA (Centro Interdipartimentale per la ricerca sui Materiali e le Tecnologie Avanzate), Arborea (OR), Italy (1989).



- 11.C(CP) **G. Cao**, E. Rombi, A. Servida (speaker) and M. Morbidelli, "Gas-Liquid Alkylaromatics Oxidation Reactors", AIChE Spring Meeting, Orlando, USA (1990).
- 12.C(CP) E. Rombi, **G. Cao** (speaker), A. Servida and M. Morbidelli, "Kinetics of P-Xylene Liquid Phase Oxidations", International Meeting CHISA '90, Praha, Czechoslovakia (1990).
- 13.C(CP) H. Wu, **G. Cao** (speaker) and M. Morbidelli, " Modeling of the Explosion Limits of an Hydrogen - Oxygen Mixture", International Meeting CHISA '90, Praha, Czechoslovakia (1990).
- 14.C **G. Cao** (speaker), E. Rombi, A. Servida and M. Morbidelli, "Liquid Phase Oxidation of p-xylene", Congresso Interdivisionale della Societa' Chimica Italiana CISCI 90, San Benedetto del Tronto, Italy (1990).
- 15.C(CP) H. Wu, **G. Cao** and M. Morbidelli (speaker), "Sensitivity Analysis of the Hydrogen - Oxygen Explosion Limits", *Proceedings of the Joint Meeting of the Soviet and Italian Sections of the Combustion Institute*, Tacchi Editore, Pisa, 6.19 (1990).
- 16.C(CP) **G.Cao** (speaker), A. Servida, M. Pisu and M. Morbidelli, "Analisi Sperimentale e Modellistica di Reattori di Ossidazione Catalitica Gas - Liquido", Giornate di Studio "Metodologie Avanzate di Ingegneria Chimica", Cagliari, Italy (1991).
- 17.C(CP) J. Markos, R. Orru', **G. Cao** and M. Morbidelli, "Separation of Amino Acids by Strong Cation Ion Exchange Resin", Congresso Interdivisionale della Societa' Chimica Italiana CISCI 91, Chianciano Terme, Italy (1991).
- 18.C **G. Cao**, "Sintesi Autopropagante ad Alta Temperatura di Materiali Ceramici Avanzati", Seminario per il Corso di Scienza e Tecnologia dei Materiali, Cagliari, Italy (1992).
- 19.C **G. Cao**, "Sensitivita' Parametrica o Runaway nel contesto dei Reattori Chimici", Seminario per il Corso di Reattori Chimici, Cagliari, Italy (1992).
- 20.C(CP) **G. Cao** (speaker), A. Servida, M. Pisu and M. Morbidelli, "Experimental Analysis and Modeling of p-Xylene Liquid Phase Catalytic Oxidation", Chemical Engineering Forum for Young Scientist, Torino, Italy, (1992).
- 21.C **G. Cao** (speaker), A. Servida, M. Pisu and M. Morbidelli, "Kinetics of p-Xylene Liquid Phase Catalytic Oxidation", AIChE Meeting, Miami Beach, Florida, USA (1992).
- 22.C **G. Cao**, "Soluzioni approssimate per reazioni gas-solido noncatalitiche", Seminario per il Corso di Ottimizzazione dei Processi Chimici, Cagliari, Italy (1993).

- 23.C **G. Cao**, "Analisi del processo di produzione di materiali ceramici avanzati per sintesi autopropagante ad alta temperatura", Seminario per il Corso di Ottimizzazione dei Processi Chimici, Cagliari, Italy (1993).
- 24.C(CP) J. Markos, S. Melis, **G. Cao** (speaker) and M. Morbidelli, "Separation of Amino Acids and Inorganic Ions by Cation Exchange Resin", *The First Conference of Chemical and Process Engineering, Firenze, Italy*, 415-418 (1993).
- 25.C(CP) M. Pisu (speaker), L. Caddeo, **G. Cao** and M. Morbidelli, "Liquid Phase Catalytic Oxidation of p-Xylene: Kinetic Study and Reactor Modeling", International Meeting CHISA '93, Praha, Czech Republic (1993).
- 26.C(CP) J. Markos, S. Melis (speaker), **G. Cao** and M. Morbidelli, "On the Separation of Amino Acids and Inorganic Ions by Cation Exchange Resin", International Meeting CHISA '93, Praha, Czech Republic (1993).
- 27.C(CP) S. Melis and **G. Cao**, "Use of Adaptive Mesh in the Simulation of Self-Propagating High-Temperature Synthesis", International Meeting CHISA '93, Praha, Czech Republic (1993).
- 28.C(CP) S. Melis and **G. Cao** (speaker), "Modeling of the Combustion Synthesis of Advanced Ceramic Materials", *Proceedings of the Joint Meeting of the Italian and Spanish Sections of the Combustion Institute, Citta' Studi Edizioni, Milano*, III 4.1-4.4 (1993).
- 29.C(CP) M. Pisu (speaker), **G. Cao**, A. Servida and M. Morbidelli, "Analisi Sperimentale e Modellistica di Reattori di Ossidazione Catalitica Gas - Liquido", Giornate di Studio "Metodologie Avanzate di Ingegneria Chimica", Trieste, Italy (1993).
- 30.C L. Muscas (speaker), **G. Cao**, C. Paniconi and G. Barrocu, "Adsorbimento e trasporto di piombo in mezzi porosi: studio sperimentale e modellistico", Convegno Nazionale dei Giovani Ricercatori in Geologia Applicata, Potenza, Italy, (1993).
- 31.C S. Melis and **G. Cao** (speaker), "A New Adaptive Mesh Technique for the Simulation of Self-Propagating High Temperature Synthesis", II International Symposium on SHS, Honolulu, Hawaii, USA (1993).
- 32.C **G. Cao** (speaker), W. Strieder and A. Varma, "Some New Considerations involving Gas-solid Reactions following the Sharp Interface Model", AIChE Meeting, St. Louis, Missouri, USA (1993).
- 33.C **G. Cao** and A. Varma (speaker), "A New Expression for Velocity of the Combustion Front during Self-propagating High-Temperature Synthesis", AIChE Meeting, St. Louis, Missouri, USA (1993).
- 34.C A. Varma (speaker), K. L. Yeung, J. Szegner and **G. Cao**, "Nonuniform Catalyst Distribution for Catalyst Membrane Reactors", Third

- International Conference on Inorganic Membranes, Worcester, Maryland, USA (1994).
- 35.C J. Szegner, **G. Cao** and A. Varma, "On the Performance of Inorganic Membrane Reactors with Nonuniform Catalyst Distribution", First International Symposium on Catalytic Membranes, Lyon - Villeurbanne, France (1994).
- 36.C L. Muscas, C. Paniconi, G. Barrocu, S. Melis (speaker), S. Franzone, **G. Cao**, "Adsorption and Transport of Metal Ions in Porous Media", Ingegneria Chimica ed Elettrochimica per la Prevenzione dell' Inquinamento, Laguna di Chia (CA), Italy (1994).
- 37.C(CP) J. Szegner, **G. Cao** and A. Varma, "A Comparison between Uniform and Nonuniform Catalyst Distribution for Inorganic Membrane Reactors", *Proc. of the 7th International Symposium on Synthetic Membranes in Science and Industry*, DECHEMA e.V. Publisher, Frankfurt am Main, 402-405 (1994).
- 38.C A. Viridis (speaker), A. Viola and **G. Cao**, "Reduced Mechanism for Ozone Decomposition Kinetics", Ingegneria Chimica ed Elettrochimica per la Prevenzione dell' Inquinamento, Laguna di Chia (CA), Italy (1994).
- 39.C(CP) R. Orru', **G. Cao** (speaker) and P. F. Viridis, "Self-Propagating Combustion Synthesis of Coatings", *Proceedings of the Joint Meeting of the Italian and Portuguese Sections of the Combustion Institute*, CUEN, Napoli, II-4 (1994).
- 40.C(CP) R. Orru' (speaker), **G. Cao** and P. F. Viridis, "Sintesi Autopropagante ad Alta Temperatura di Rivestimenti Superficiali", *Atti del 25° Convegno Nazionale AIM*, Milano, Italy, 3.73-3.75 (1994).
- 41.C S. Melis, J. Markos, **G. Cao** and M. Morbidelli, "Chromatographic Separation of Amino Acids and Inorganic Ions by Ion Exchange Resins", X Congresso di Chimica Industriale, Pisa, Italy (1994).
- 42.C S. Melis, J. Markos, **G. Cao** (speaker) and M. Morbidelli, "Experimental Analysis and Modeling of Equilibrium Sorption of Amino Acids by a Cation Exchange Resin", AIChE Meeting, San Francisco, California, USA (1994).
- 43.C(CP) L. Muscas, S. Melis, S. Franzone and **G. Cao**, "Adsorption and Transport of Lead in a Natural Porous Medium", *Proceedings of the First European Conference for Young Researchers in Chemical Engineering*, Chameleon Press Ltd, London, UK (1995).
- 44.C(CP) A. Viridis, A. Viola and **G. Cao**, "A Reduced Mechanism for Ozone Decomposition Kinetics", *Proceedings of the First European Conference for Young Researchers in Chemical Engineering*, Chameleon Press Ltd, London, UK (1995).

- 45.C(CP) R. Orru', P. Viridis and **G. Cao**, "Preparation of Coatings via Self-Propagating High Temperature Synthesis in the field of Centrifugal Forces", *Proceedings of the First European Conference for Young Researchers in Chemical Engineering*, Chameleon Press Ltd, London, UK, 553-555 (1995).
- 46.C(CP) S. Melis, J. Markos, **G. Cao** and M. Morbidelli, "On the Equilibrium Sorption of Amino Acids by a Cation Exchange Resin", *Proceedings of the First European Conference for Young Researchers in Chemical Engineering*, Chameleon Press Ltd, London, UK, 1070-1072 (1995).
- 47.C J. Markos (speaker), S. Melis, **G. Cao** and M. Morbidelli, "Simulation of fixed-bed ion exchange columns for amino acids separation", TEMPUS JEN-1125 Training Course in "Selected Topics on Chemical and Biochemical Engineering", Harmonia, Slovakia (1995).
- 48.C(CP) S. Melis (speaker), J. Markos, **G. Cao** and M. Morbidelli, "On the Equilibrium Sorption of Amino Acids by a Cation Exchange Resin", ICheaP-2, Florence, Italy (1995).
- 49.C(CP) R. Orru', P. Viridis and **G. Cao** (speaker), "Preparation of Coatings via Self-Propagating High Temperature Synthesis in the field of Centrifugal Forces", ICheaP-2, Florence, Italy (1995).
- 50.C(CP) A. Viridis, A. Viola and **G. Cao**, "Sensitivity Analysis for Ozone Decomposition Kinetics", *Proceedings of the 13th Ozone World Congress*, International Ozone Association Editor, Instaprint S. A., Tours, 727-730 (1995).
- 51.C(CP) M. Pisu (speaker), **G. Cao** and M. Morbidelli, "A Simulation Model for Semibatch Gas-Liquid Reactors: Application to the Catalytic Oxidation of p-Xylene to Terephthalic Acid", ICheaP-2, Florence, Italy (1995).
- 52.C(CP) R. Orru', B. Simoncini, **G. Cao** and P. F. Viridis, "On the Combustion Synthesis of Coatings: Preparation and Structure Formation", *Proceedings of the Combustion Meeting '95*, CUEN, Napoli, Italy, II-9 (1995).
- 53.C **G. Cao**, "Deposizione Chimica da Fase Vapore, Progettazione Ottimale di Catalizzatori e Sintesi Autopropagante ad Alta Temperatura di Materiali Avanzati", Seminario per il Corso di Perfezionamento in Scienza e Tecnologia dei Materiali, Cagliari, Italy (1995).
- 54.C **G. Cao**, M. Pisu and M. Morbidelli, "Liquid Phase Catalytic Oxidation of p-Xylene", 14th Colloquium of the Working Party on Chemical Reaction Engineering, Bled, Slovenia (1995).
- 55.C(CP) S. Melis, **G. Cao** (speaker) and M. Morbidelli, "Optimal Catalyst Distribution and Selection of Membrane Width in Catalytic Membrane

- Reactors", First Workshop of the ESF Network on Catalytic Membrane Reactors, Montpellier, France (1995).
- 56.C(CP) A. Viridis (speaker), A. Viola and **G. Cao**, "Effetto della decomposizione dell' ozono nel trattamento delle acque potabili", *Atti del 14 Congresso Nazionale dell' A.I.D.I.I. a cura di D. Cottica, V. Prodi e M. Imbriani*, Tipografica PI-ME Editrice, Pavia, 29-31 (1995).
- 57.C(CP) J. Markos (speaker), S. Melis, **G. Cao** and M. Morbidelli, "Multicomponent Ion Exchange Equilibria of Amino Acids", Proc. of the XXII Conference of Slovak Society of Chemical Engineering, 17-20 (1995).
- 58.C(CP) J. Markos (speaker), S. Melis, **G. Cao** and M. Morbidelli, "Modeling of Amino Acid Separation by Ion Exchange Resins", Proc. of the XXII Conference of Slovak Society of Chemical Engineering, 41-44 (1995).
- 59.C S. Melis, J. Markos, **G. Cao** e M. Morbidelli, "Multicomponent Equilibria on Ion-exchange Resins", Seventh International Conference on Fluid Properties & Phase Equilibria for Chemical Process Design, Snowmass, Colorado, USA, (1995).
- 60.C R. Orru' (speaker), B. Simoncini, **G. Cao** and P. F. Viridis, "Rivestimenti Superficiali per Sintesi Autopropagante ad Alta Temperatura", XVIII Congresso della Societa' Chimica Italiana, Milano, Italy (1995).
- 61.C **G. Cao**, M. Pisu, J. Markos, M. Morbidelli (speaker), "Simulazione Modellistica di Reattori Gas-Liquido: Applicazione all' Ossidazione Catalitica del p-Xylene ad Acido Tereftalico", XVIII Congresso della Societa' Chimica Italiana, Milano, Italy (1995).
- 62.C S. Melis, **G. Cao** and M. Morbidelli, "Equilibri di Scambio Ionico di Ammino Acidi su Resine Cationiche Forti", XVIII Congresso della Societa' Chimica Italiana, Milano, Italy (1995).
- 63.C A. Gavriilidis (speaker), S. Melis and **G. Cao**, "Effect of Pore Shape in Hydrodemetallation catalysts", AIChE Meeting, Miami Beach, Florida, USA (1995).
- 624.C **G. Cao** (speaker), J. Markos, M. Pisu and M. Morbidelli, "A Comprehensive Model for Simulating Gas-Liquid Reactors: Application to the Catalytic Oxidation of p-Xylene to Terephthalic Acid", AIChE Meeting, Miami Beach, Florida, USA (1995).
- 65.C R. Orru', B. Simoncini, **G. Cao** (speaker) and P. F. Viridis, "Structure Formation Studies of a Thermite Reaction used for Combustion Synthesis of Coatings", AIChE Meeting, Miami Beach, Florida, USA (1995).

- 66.C(CP) A. Gavriilidis, S. Melis and **G. Cao**, "Effect of Radial Pore Size Distribution in Hydrodemetallation Catalysts Pellets", IChemE, Leeds, UK (1996).
- 67.C J. Markos, S. Melis, G. Cao and M. Morbidelli, "Equilibri di Scambio Ionico per lo Sviluppo di Processi Cromatografici Industriali per la Separazione di Ammino Acidi e Ioni Inorganici", XIX Congresso Nazionale Ricerca e Tecnologia, Riccione, Italy (1996).
- 68.C S. Melis, J. Markos, **G. Cao** and M. Morbidelli, "Separation between Amino Acids and Inorganic Ions through Ion Exchange: Development of a Mathematical Model", AIChE Meeting, Chicago, Illinois, USA (1996).
- 69.C R. Orru', B. Simoncini, D. Carta, P. F. Viridis and **G. Cao** (speaker), "On the Mechanism of Structure Formation in Self-propagating Thermite Reactions", AIChE Meeting, Chicago, Illinois, USA (1996).
- 70.C A. Cincotti and **G. Cao** (speaker), "Effect of Catalyst Concentration on the Liquid-Phase Catalytic Oxidation of p-Xylene and Simulation of the Precipitation Process of Terephthalic Acid", AIChE Meeting, Chicago, Illinois, USA (1996).
- 71.C(CP) B. Simoncini, R. Orru' and **G. Cao** (speaker), "Reazioni autopropaganti per la valorizzazione di residui della idrometallurgia dello zinco: risultati preliminari", I Workshop ENEA-INCA Ricerca, Innovazione, Tecnologia e Ambiente, Roma (1996).
72. C R. Orru', B. Simoncini and **G. Cao** (speaker), "Sintesi di Rivestimenti protettivi di tubazioni metalliche", ARCHIMEDE La giornata dell' Invenzione e dell' Innovazione, Cagliari, Italy (1996).
- 73.C(CP) R. Orru', B. Simoncini, D. Carta, and **G. Cao**, "On the Mechanism of Structure and Product Formation in Self-propagating Thermite Reactions", *Proceedings of the International Conference on Advances in Chemical Engineering ICACHE 96*, Allied Publishers, Bombay, 21-26, (1996).
- 74.C(CP) R. Orru', B. Simoncini, P. F. Viridis and **G. Cao**, "Reazioni autopropaganti ad alta temperatura per la sintesi di materiali innovativi", *Atti del XXVI Convegno Nazionale AIM*, AIM (ed.), 113-120 (1996).
- 75.C(CP) R. Orru', B. Simoncini, P. F. Viridis and **G. Cao**, "Sintesi di rivestimenti protettivi per combustione autopropagante", *Atti del III Congresso Nazionale AIMAT*, C. Colella (ed.), De Frede Editore, Napoli, 151-159 (1996).
- 76.C B. Simoncini, R. Orru', M. V. Simeone and **G. Cao** (speaker), "Reazioni autopropaganti per il trattamento e la valorizzazione di residui industriali", I Congresso Nazionale del Consorzio INCA, Ferrara (1997).

- 77.C R. Orru', B. Simoncini and **G. Cao**, "Reazioni autopropaganti ad alta temperatura per la sintesi di materiali innovativi, I Convegno Nazionale sulla Scienza e Tecnologia dei Materiali, Lerici, La Spezia (1997).
- 78.C(CP) M.L. Pilia (speaker), A. Viola, **G. Cao**, A.M Gregu, G. Melis and V. Guerrini, "Modeling of fluid catalytic cracking units and comparison with industrial scale data", The First European Conference on Chemical Engineering, Florence, 2251-2254 (1997).
- 79.C(CP) R. Orru' (speaker), B. Simoncini, A. Viola and **G. Cao**, "Self-propagating thermite reactions: mechanism of structure and product formation", The First European Conference on Chemical Engineering, Florence, 2275-2278 (1997).
- 80.C R. Orru', B. Simoncini and **G. Cao** (speaker), "Una tecnica innovativa per l' inertizzazione ed il riutilizzo di residui della idrometallurgia dello zinco", La Fiera della Molecola, Cagliari (1997).
- 81.C(CP) R. Orru' (speaker), B. Simoncini, M. Sannia, A. Cincotti and **G. Cao**, "Combustion synthesis of intermetallics", FRANTIC '97, Chia Laguna, I/1.1-I/1.4, (1997).
- 82.C A. Cincotti, R. Orru', B. Simoncini, M. Sannia, and **G. Cao** (speaker), "Modeling of Combustion Front Quenching Technique", IV International Symposium Self-propagating High-temperature Synthesis, Toledo, Spain (1997).
- 83.C R. Orru', B. Simoncini, M. Sannia, A. Cincotti and **G. Cao**, "Macrokinetic Studies of Hematite Reduction by Aluminum in the Presence of Additives", IV International Symposium Self-propagating High-temperature Synthesis, Toledo, Spain (1997).
- 84.C B. Simoncini, R. Orru', M. Sannia, A. Cincotti and **G. Cao** (speaker), "Self-propagating Reactions for Treating and Recycling Zinc Hydrometallurgical Wastes, IV International Symposium Self-propagating High-temperature Synthesis, Toledo, Spain (1997).
- 85.C R. Orru' (speaker), Z. A. Munir and **G. Cao**, "Combustion Synthesis of Titanium Aluminides Assisted by an Electrical Field", AIChE Meeting, Los Angeles, California, USA (1997).
- 86.C B. Simoncini, R. Orru', A. Cincotti and **G. Cao**, "An innovative approach for treating and recycling zinc hydrometallurgical wastes", AIChE Meeting, Los Angeles, California, USA (1997).
- 87.C(CP) R. Orru', B. Simoncini, M. Sannia, A. Cincotti and **G. Cao** (speaker), "Materiali innovativi per sintesi autopropagante ad alta temperatura", Atti del Convegno-Esposizione Materiali Ricerca e Prospettive Tecnologiche alle soglie del 2000, Milano, 889-896 (1997).

- 88.C(CP) B. Simoncini, R. Orru' and **G. Cao**, "Self-propagating Reactions for Treating and Recycling Zinc Hydrometallurgical Wastes", *Proceedings of the 5th Conference and Exhibition of the European Ceramic Society - Key Engineering Materials Vols. 132-136*, 2276-2279 (1997).
- 89.C(CP) R. Orru', M. Sannia, B. Simoncini, D. Zedda and **G. Cao** (speaker), "Processi basati su reazioni autopropaganti per il riciclo di rifiuti industriali: residui della idrometallurgia dello zinco", Seminario interno del Gruppo Nazionale per la Difesa dai Rischi Chimico Industriali ed Ecologici, Roma, C/1-C/10 (1998).
- 90.C(CP) R. Orru', A. Alberto, M. Sannia, D. Zedda and **G. Cao** (speaker), "Macrokinetics studies on combustion synthesis: experimental and modeling", *Combustion Meetings '98*, 201-204 (1998).
- 91.C(CP) A. Cincotti, R. Orru' and **G. Cao** (speaker), "Kinetics and related engineering aspects of catalytic liquid-phase oxidation of p-xylene to terephthalic acid", *Proceedings of the V Seminar of Catalysis*, C. Perego & L. Forni (eds.), 275-291 (1998).
- 92.C(CP) R. Orru', A. Cincotti, D. Zedda, M. Sannia, G. Pilloni and **G. Cao** (speaker), "Metodologie per lo studio di reazioni solido-solido autopropaganti", *Congresso GRICU 1998*, Ferrara, 55-58 (1998).
- 93.C(CP) M. Sannia, A. Marcus, B. Cau, R. Orru', P. Serra, G. Usai and **G. Cao**, "Reazioni autopropaganti per l'inertizzazione di scarti industriali", *Congresso GRICU 1998*, Ferrara, 141-144 (1998).
- 94.C(CP) R. Orru', **G. Cao** and Z. A. Munir, "Sintesi per combustione di intermetallici assistita da campo elettrico", *Congresso GRICU 1998*, Ferrara, 145-148 (1998).
- 95.C(CP) A. Cincotti, M. Murru, M. Sannia, **G. Cao** (speaker), B. Marongiu and F. Masia, "Equilibri liquido-liquido tra formilmorfolina, paraffine ed aromatici", *Congresso GRICU 1998*, Ferrara, 425-428 (1998).
- 96.C R. Orru', D. Zedda and **G. Cao** (speaker), "A centrifugal combustion synthesis process for coating preparation", *Second Symposium of European Vacuum Coaters*, Anzio, Roma, (1998).
- 97.C(CP) P. Serra, R. Orru', C. Dellaca', D. Manca, **G. Cao** (speaker), P.L. Accardo, M. Boi e R. Lonis, "Heavy metals and ammonia removal from water using sardinian natural zeolites", *Water in the mediterranean area - Conference on quality and quality of mediterranean water resources*, WTM-O4 (1998).
- 98.C(CP) A. Cincotti, R. Orru', G. Carta and **G. Cao**, "On the Liquid-Phase Catalytic Oxidation of p-Xylene: the Influence of Catalyst Concentration", *Proceedings of the International Conference on Catalysis in Multipase Reactors*, Toulouse, France, 3-10 (1998).



- 99.C(CP) R.Orru', Z. A. Munir and **G.Cao**, "Sintesi per combustione di alluminuri di titanio", *Atti del IV Congresso Nazionale AIMAT, PTM editrice*, 185-192 (1998) and *Atti del XXVII Convegno Nazionale AIM*, AIM (ed.), 29-35 (1998).
- 100.C(CP) A. Cincotti, R. Orru', M. Sannia, G. Storti and **G. Cao**, "Indagine sperimentale e modellistica della tecnica di estinzione del fronte in reazioni di combustione autopropagante per la sintesi di materiali avanzati", *Atti del IV Congresso Nazionale AIMAT, PTM editrice*, 209-216 (1998).
- 101.C(CP) M. Sannia, B. Simoncini, R. Orru', A. Cincotti and **G. Cao**, "Sviluppo di una tecnica innovativa per il trattamento e il riciclo di residui della idrometallurgia dello zinco", *Atti del IV Congresso Nazionale AIMAT, PTM editrice*, 594-601 (1998).
- 102.C(CP) **G. Cao** (speaker), I. Caro, L. Froyen, P. Giuliani, P. Lintula, G. Murgia, R. Orru', M. A. Rodriguez, C. Zanotti, "The combustion synthesis and microgravity team and related activities", *Proceedings of the II European Symposium on the Utilization of the International Space Station*, 277-284 (1999).
- 103.C(CP) P. Serra, R. Orru, R. Porcu, **G. Cao**, P. L. Accardo, M. Boi, and R. Lonis, "SARDINIAN NATURAL ZEOLITES FOR HEAVY METALS AND AMMONIA REMOVAL", *Proceedings of ICheaP-4, Florence, Italy*, 253-256 (1999).
- 104.C(CP) G. Murgia, A. Cincotti, R. Orru, D. Zedda and **G. Cao**, "MACROKINETICS STUDIES FOR SOLID-SOLID SELF-PROPAGATING REACTIONS", *Proceedings of ICheaP-4, Florence, Italy*, 75-78 (1999).
- 105.C(CP) T. Faravelli, A. Goldaniga, E. Ranzi, **G. Cao** and M. Pisu, "Ignition Delay Times and Knocking Tendency of Kerosene", *Proceedings of ICheaP-4, Florence, Italy*, 31-34 (1999).
- 106.C R. Orru, A. Marcus, M. Sannia, **G. Cao**, S. Doppiu, M. Monagheddu, G. Cocco, "The Self-Propagating Degradation of Chloro-organic Compounds: The Case of Hexachlorobenzene over Calcium Hydride", *SHS99, Moscow, Russia* (1999).
- 107.C M. Sannia, R. Orru', A. Marcus, D. Zedda and **G. Cao**, "TREATMENT AND RECYCLING OF ZINC HYDROMETALLURGICAL WASTES BY SELF-PROPAGATING REACTIONS", *SHS99, Moscow, Russia* (1999).
- 108.C A. V. Kostanyan, H. H. Nersisyan, S. L. Kharatyan, R. Orru, D. Zedda, **G. Cao**, "CHEMICAL STIMULATED COMBUSTION IN (Zr+SiO<sub>2</sub>+C) SYSTEM AND SYNTHESIS OF (ZrO<sub>2</sub>+SiC) COMPOSITE POWDER CONTAINING SiC WHISKERS", *SHS99, Moscow, Russia* (1999).

- 109.C R. Orru, **G. Cao** and Z.A.Munir, "ON THE FIELD-ACTIVATED COMBUSTION SYNTHESIS OF TITANIUM ALUMINIDES", SHS99, Moscow, Russia (1999).
- 110.C U. Anselmi-Tamburini, V. Buscaglia, **G. Cao**, P. Giuliani, R. Orru', C. Zanotti, "CO<sub>2</sub> laser systems to investigate combustion synthesis reactions", SHS99, Moscow, Russia (1999).
- 111.C U. Anselmi-Tamburini, V. Buscaglia, **G. Cao**, P. Giuliani, R. Orru', C. Zanotti "Combustion Synthesis and Microgravity Activities of the Italian Team", ELGRA, Rome, Italy (1999).
- 112.C(CP) M. Sannia, A. Marcus, R. Orru', **G. Cao** and R. Porcu, "A novel technique for treating and recycling zinc hydrometallurgical wastes", 1st International Conference on Solid Wastes, Rome, Italy (1999).
- 113.C **G. Cao**, "Panoramica dell'attività di ricerca nel campo delle reazioni autopropaganti solido-solido", Giornate di studio: Sintesi per combustione, Bonassola (SP), Italy (1999).
- 114.C R. Orru' and **G. Cao**, "Sintesi di composti intermetallici per combustione assistita da campo elettrico", Giornate di studio: Sintesi per combustione, Bonassola (SP), Italy (1999).
- 115.C **G. Cao**, "L'analisi del territorio e i criteri per l'inviduazione dei siti", Conferenza di Pianificazione – La Gestione dei Rifiuti Urbani e Speciali nella Provincia di Cagliari", Cagliari, Italy (1999).
- 116.C G. Cocco, S. Doppiu, M. Monagheddu, **G. Cao** and R. Orrù, "Self-propagating high-temperature reduction of toxic chlorinated aromatics", Convegno Nazionale del Consorzio INCA, Accademia dei Lincei, Italy (2000).
- 117.C M. Pisu, A. Cincotti, **G. Cao** and F. Pepe, "Oxidation of calcium bisulfite in the wet limestone-gypsum flue-gas desulfurization process: experiments and modeling", Working Party on Distillation, Absorption and Extraction, Winterthur, Switzerland (2000).
- 118.C R. Orrù, E. Medda, M. Sannia, R. Licheri, A. Concas, R. Porcu, N. Lai, A. M. Locci, **G. Cao**, "Applicazioni di processi basati su reazioni autopropaganti nel settore dell'ambiente e della produzione di materiali innovativi", "ARCHIMEDE" La seconda giornata dell'invenzione: dall'innovazione all'impresa, Italy (2000).
- 119.C A. Concas and **G. Cao**, "Site restoration activities in Sardinia", WORKSHOP on The Aurul Mine accident - Environmental emergency of the Danube-Tibisco, Italy (2000).
- 120.C N. Ivanova, N. Korobova, E. Ponamareva, Soh Deawha, V. Barzykin, G. Xanthopoulou and **G. Cao**, "SHS Combustion Characteristics of

- Intermetallic Compounds”, International Workshop “Organized Structure in Open Systems”., Almaty, Kazakstan (2000).
- 121.C(CP) A.S. Rogachev, V.N. Sanin, A.E. Sytshev, V.I. Yukhvid, E. Medda, R. Orrù and **G. Cao**, “Studio dell’influenza della gravità nei processi di sintesi autopropagante ad alta temperatura: il caso dei sistemi Cu<sub>2</sub>O-Cu-Al e Cu<sub>2</sub>O-Al”, *Atti del XXVIII Convegno Nazionale AIM*, AIM (ed.), 729-737 (2000).
- 122.C E. Medda, R. Licheri, A. Locci, R. Orrù and **G. Cao**, “Studio dell’influenza della gravità nei processi di sintesi autopropagante ad alta temperatura: il caso dei sistemi Cu<sub>2</sub>O-Al e Cu<sub>2</sub>O-Cu-Al”, Corso seminariale di Metallurgia, Cassino (2001).
- 123.C R. Licheri, E. Medda, A. M. Locci, R. Orrù and **G. Cao**, “Sintesi autopropagante ad alta temperatura di polveri per deposizione al plasma”, Corso seminariale di Metallurgia, Cassino (2001).
- 124.C A.M. Locci, A. Cincotti<sup>1</sup>, M. Pisu, R. Orrù and **G. Cao**, “SIMULAZIONE DEL PROCESSO DI SINTESI DI MATERIALI INNOVATIVI PER COMBUSTIONE AUTOPROPAGANTE AD ALTA TEMPERATURA ATTIVATA DA CAMPO ELETTRICO”, Corso seminariale di Metallurgia, Cassino (2001).
- 125.C D.Carta, **G. Cao** and C. D’Angeli, “CHEMICAL RECYCLING OF POLY(ETHYLENE TEREPHTHALATE) (PET)BY HYDROLYSIS AND GLYCOLYSIS”, IV Convegno del Consorzio Interuniversitario Nazionale La Chimica per l’Ambiente, S. Margherita Ligure (2001).
- 126.C R. Orrù, A. Cincotti, A. Concas and **G. Cao**, “SELF-PROPAGATING REACTIONS FOR ENVIROMENTAL PROTECTION: STATE OF THE ART AND FUTURE DIRECTIONS”, IV Convegno del Consorzio Interuniversitario Nazionale La Chimica per l’Ambiente, S. Margherita Ligure (2001).
- 127.C(CP) G. Cao, R. Orrù, E. Medda, A. Locci and A. Cincotti, “ Effect of microgravity on high-temperature self-propagating reactions”, VI International Microgravity Compustion Workshop, Cleveland, Ohio (2001).
- 128.C D. Carta, C. D’Angeli and **G. Cao**, "CHEMICAL RECYCLING OF POLY(ETHYLENE TEREPHTHALATE) (PET) BY HYDROLYSIS AND GLYCOLYSIS", Conference "Green Chemistry - sustainable products and processes”, Swansea, Wales, UK (2001).
- 129.C(CP) D. Carta, C. D’Angeli and **G. Cao**, “CHEMICAL RECYCLING OF POLY(ETHYLENE TEREPHTHALATE) (PET) BY HYDROLYSIS AND GLYCOLYSIS”, International Conference PRES'01, Firenze, Italy (2001).
- 130.C(CP) Orru R., Sannia M., Concas A., Cincotti A., Usai G.and **Cao G.**, “SELF PROPAGATING REACTIONS FOR ENVIRONMENTAL PROTECTION: A PROMISING FIELD IN ENVIRONMENTAL CHEMICAL ENGINEERING”, International Conference ICheaP-5, Firenze, Italy (2001).

- 131.C(CP) Orru R., Medda E., Locci A.M., Licheri R., Pilloni G. and **Cao G.**, "INFLUENCE OF GRAVITY ON SELF-PROPAGATING HIGH-TEMPERATURE REACTIONS FOR THE SYNTHESIS OF ADVANCED MATERIALS", International Conference ICheaP-5, Firenze, Italy (2001).
- 132.C(CP) Pisu M., Lai N., Cincotti A., Carta D., **Cao G.**, Pepe F., Peronetti G., "SIMULATION OF UNCATALYZED BISULFITE OXIDATION UNDER CHEMICAL AND MASS TRANSFER CONTROLLED REGIMES", International Conference ICheaP-5, Firenze, Italy (2001).
- 133.C(CP) Lai N., Cincotti A., Orru R., Pisu M., **Cao G.**, "HEAVY METALS AND AMMONIUM REMOVAL BY SARDINIAN NATURAL CLINOPTILOLITES", International Conference ICheaP-5, Firenze, Italy (2001).
- 134.C(CP) Pisu M., Cincotti A., Orru R., Locci A.M., **Cao G.**, Viola A., "A TWO-DIMENSIONAL MODEL OF ELECTRIC FIELD-ACTIVATED SELF-PROPAGATING REACTIONS", International Conference ICheaP-5, Firenze, Italy (2001).
- 135.C(CP) Delogu F., Orru R., **Cao G.**, "MODELING OF MECHANO-CHEMICAL REACTORS", International Conference ICheaP-5, Firenze, Italy (2001).
- 136.C(CP) A. Uda, A. M. Locci, A. Cincotti, R. Orrù and **G. Cao**, "MICROGRAVITY EFFECTS ON HIGH-TEMPERATURE SELF-PROPAGATING REACTIONS", WORKSHOP "LA SCIENZA E LA TECNOLOGIA SULLA STAZIONE SPAZIALE INTERNAZIONALE (ISS)", Torino, Italy (2001).
- 137.C(CP) D. Carta, C. D'Angeli and **G. Cao**, "HYDROLYSIS AND GLYCOLYSIS PROCESSES FOR POLY(ETHYLENE TEREPHTHALATE) (PET) WASTE MINIMIZATION AND RECYCLING", EUROMAT, Rimini, Italy (2001).
- 138.C(CP) **G. Cao**, "L'Area CPM del CRS4", *Io Ideo No. 1*, Italy (2001).
139. C(CP) **G. Cao**, "Primo esperimento europeo di sintesi per combustione di materiali innovativi in condizioni di microgravità", *Io Ideo No. 2*, Italy (2001).
140. C(CP) A. Cincotti, R. Orrù, **G. Cao** and G. Murgia, "On the modeling of the copper block front quenching technique to investigate solid-solid self-propagating high-temperature reactions", *Science and Supercomputing at CINECA Report 2001*, 202-210 (2001).
- 141.C **G. Cao**, R. Orru', M. Monagheddu, S. Doppiu, and G. Cocco, "Thermal and mechanochemical reduction of hexachlorobenzene over calcium hydride", *International Workshop on Mechanochemical Processes for the Environment*, Bari, Italy (2002).
- 142.C A. V. Abovyan, H. H. Nersisyan, S. L. Kharatian, R. Orrù, and **G. Cao**, "The laws of activated combustion front propagation in SiO<sub>2</sub>-Al-C

- systems at directed gas infiltration”, *VI International Symposium on Self-propagating High-temperature Synthesis (SHS)*, Haifa, Israel (2002).
- 143.C R. Orrù, A. Cincotti, A. Locci, R. Licheri, E. Medda, F. Delogu, G. Pilloni, G. Usai and **G. Cao**, “NOVEL COMBUSTION SYNTHESIS TECHNOLOGIES”, *WORKSHOP on MATERIALS SCIENCE IN ITALY IN THE EUROPEAN FRAME*, Florence, Italy (2002).
- 144.C(CP) **G. Cao**, “COSMIC, il CRS4 e l’Università in volo parabolico”, *Io Ideo No. 3*, Italy (2002).
- 145.C(CP) M. Pisu, A. Cincotti, A.M. Locci, R. Orrù and **G. Cao**, “Mathematical modeling of electric field-activated combustion reactions”, *Proceedings of the XXV Event of the Italian Section of the Combustion Institute*, I.5, Rome, Italy (2002).
- 146.C(CP) D. Carta, R. Orrù and **G. Cao**, “Self-propagating reactions for environmental protection: State of the art”, *Proceedings of the XXV Event of the Italian Section of the Combustion Institute*, VII.25, Rome, Italy (2002).
- 147.C D. Carta, R. Orrù and **G. Cao**, “Sviluppo di tecnologie innovative basate su reazioni autopropaganti per il riciclo e l’inertizzazione di rifiuti industriali”, *La Parola ai Giovani*, Cagliari, (2002).
- 148.C A. Cincotti and **G. Cao**, “Simulazione modellistica del trasporto di cationi attraverso membrane polimeriche contetenti eteri corona”, *La Parola ai Giovani*, Cagliari, (2002).
149. C A. Concas and **G. Cao**, “Caratterizzazione dello stato di contaminazione da metalli pesanti di un sito minerario dismesso”, *La Parola ai Giovani*, Cagliari, (2002).
- 150.C N. Lai, A. Cincotti and **G. Cao**, “Simulazione modellistica di processi di adsorbimento su carboni attivi e verifiche sperimentali”, *La Parola ai Giovani*, Cagliari, (2002).
- 151.C R. Licheri, R. Orrù and **G. Cao**, “Sintesi autopropagante ad alta temperatura in condizioni di microgravità”, *La Parola ai Giovani*, Cagliari, (2002).
- 152.C A. Mameli, A. Cincotti and **G. Cao**, “Caratterizzazione di zeoliti naturali disponibili in Sardegna per applicazioni ambientali”, *La Parola ai Giovani*, Cagliari, (2002).
- 153.C E. Medda, F. Delogu and **G. Cao**, “Utilizzo combinato della tecnica di attivazione meccanica e sintesi autopropagante ad alta temperatura per l’ottenimento di alluminuri di titanio”, *La Parola ai Giovani*, Cagliari, (2002).

- 154.C N. Lai, A. Mamei, A. Cincotti, **G. Cao**, "Mathematical modeling of adsorption onto activated carbon from natural sources", *V Congresso Nazionale del Consorzio INCA, Tunisi (2002)*.
- 155.C A. Cincotti and **G. Cao**, "Simulation of alkali metal cation transport through a polymer-inclusion membrane with calixcrown carrier", *V Congresso Nazionale del Consorzio INCA, Tunisi (2002)*.
- 156.C A. Mamei, A. Cincotti, N. Lai, S. Naitza, M. Palomba, R. Orrù, **G. Cao**, "Natural zeolites for lead removal", *V Congresso Nazionale del Consorzio INCA, Tunisi (2002)*.
- 157.C A. Concas, A. Cincotti, **G. Cao**, "Environmental characterization and experimental investigation on possible remediation technique of metal contamination from abandoned mining sites", *V Congresso Nazionale del Consorzio INCA, Tunisi (2002)*.
- 158.C D. Carta, F. Delogu, R. Orrù and **G. Cao**, "Environmental protection by self-propagating and mechanochemical reactions", *V Congresso Nazionale del Consorzio INCA, Tunisi (2002)*.
- 159.C A. Mamei, A. Cincotti, N. Lai, R. Orrù and **G. Cao**, "Processi di adsorbimento/scambio ionico su zeoliti naturali", *Workshop PROGEMISA "Sviluppo di applicazioni industriali di zeoliti naturali della Sardegna nella depurazione delle acque"*, Cagliari (2002).
- 160.C(CP) **G. Cao**, "COSMIC, il CRS4 e l'Università di Cagliari quasi in orbita", *Io Ideo No. 5, Italy (2002)*.
- 161.C(CP) R. Licheri, R. Orrù, **G. Cao**, J. De Wilde, I. A. Beloki, D. J. Jarvis and L. Froyen, "Sintesi autopropagante ad alta temperatura in condizioni di microgravità", *Covegno AIM, Italy (2002)*.
- 162.C(CP) E. Medda, F. Delogu and **G. Cao**, "Utilizzo combinato della tecnica di attivazione meccanica e di sintesi autopropagante ad alta temperatura per l'ottenimento di alluminuri di titanio", *Covegno AIM, Italy (2002)*.
- 163.C(CP) A. M. Locci, A. Cincotti, F. Delogu, R. Orrù and **G. Cao**, "Approccio innovativo alla simulazione modellistica del processo di sintesi autopropagante ad alta temperatura", *Covegno AIM, Italy (2002)*.
- 164.C M. Pisu, N. Lai, A. Cincotti, F. Delogu and **G. Cao**, "A simulation model for the growth of tissue cartilage on polymeric scaffolds", *AICHE Annual Meeting, USA (2002)*.
- 165.C R. Orrù, **G. Cao** and Z.A. Munir, "Synthesis of nanometric materials through mechanical and field activation", *Japan-Italy Joint Symposium on Nanostructured materials for structural applications and nanodevices, Tsukuba, Japan (2002)*.

- 166.C(CP) **G. Cao**, A. Concas, A. Mameli, N. Lai, A. Cincotti, “Un approccio integrato per la bonifica del sito ACNA di Cengio”, *Soil Remediation Series No.1*, P. Canepa Editor, 35-45 (2002).
- 167.C(CP) R.Orrù and **G. Cao**, “Self-propagating reactions for the detoxification of hexachlorobenzene and 2-(2-4-dichlorophenoxy)-propanoic acid with calcium hydride”, *Proceedings of the International Workshop Hazardous Haloaromatic Pollutants: Detoxification and Analysis*, P. Tundo and V. Lunin Editors, 90-96 (2002).
- 168.C R. Licheri, R. Orru, **G. Cao**, J. De Wilde, I. A. Beloki, D. J. Jarvis and L. Froyen, “Combustion Synthesis under Microgravity Conditions of Titanium Diboride-Titanium Aluminides”, *ELGRA Biennial Meeting, Germany* (2003).
- 169.C(CP) M. Pisu, N. Lai, A. Cincotti, F. Delogu and **G. Cao**, “A simulation model for the growth of engineered cartilage on polymeric scaffolds”, *Proceedings of the VI Italian Conference on Chemical and Process Engineering, Chemical Engineering Transactions*, S. Pierucci Editor, 1307-1312, (2003).
- 170.C(CP) A. Cincotti, R. Licheri, A. Locci, R. Orrù and **G. Cao**, “Combustion synthesis of novel materials: and overview of recent results”, *Proceedings of the VI Italian Conference on Chemical and Process Engineering, Chemical Engineering Transactions*, S. Pierucci Editor, 237-242, (2003).
- 171.C(CP) A. Locci, A. Cincotti, F. Delogu, R. Orrù and **G. Cao**, “Modeling of self-propagating reactions: past approaches and future directions”, *Proceedings of the VI Italian Conference on Chemical and Process Engineering, Chemical Engineering Transactions*, S. Pierucci Editor, 309-314, (2003).
- 172.C(CP) A.Locci, R. Orrù, **G. Cao** and Z.A. Munir, “Field-activated pressure-assisted synthesis of NiTi”, *Proceedings of the VI Italian Conference on Chemical and Process Engineering, Chemical Engineering Transactions*, S. Pierucci Editor, 587-592, (2003).
- 173.C **G. Cao**, “Progetto P6 INCA Legge 488/92”, *Incontro scientifico “I giovani, la chimica e l’ambiente”*, Roma, Italy (2003).
- 174.C(CP) A. Mameli, A. Cincotti, N. Lai, **G. Cao**, S. Naitza and M. Palomba, “Characterization of zeolites from Romana (NW Sardinia, Italy) for environmental applications”, *Proceedings of the International Conference Euroclay 2003* (2003).
- 175.C J. De Wilde (speaker), L. Froyen, **G. Cao**, R. Orrù, I. A. Beloki, A. E. Sytshev, A. S. Rogachev, D. J. Jarvis, L. Vautmans, F. Preud'homme, R. Licheri, “ Self-propagating high-temperature synthesis of Al-Ti-B in the ISS: reactor design and preliminary evaluation”, *VII International Symposium on Self-propagating High-temperature Synthesis (SHS), Cracow, Poland* (2003).

- 176.C A.M. Locci (speaker), A. Cincotti, F. Delogu, R. Orrù, **G. Cao**, “Modeling of self-propagating reactions: past approaches and future directions”, *VII International Symposium on Self-propagating High-temperature Synthesis (SHS)*, Cracow, Poland (2003).
- 177.C R. Licheri (speaker), R. Orrù, A. Cincotti, and **G. Cao**, “Synthesis of Ti/TiC by Chemically Activated Self-propagating Reactions”, *VII International Symposium on Self-propagating High-temperature Synthesis (SHS)*, Cracow, Poland (2003).
- 178.C E. Medda, F. Delogu, **G. Cao** (speaker), Combination of mechanochemical activation and self-propagating behaviour for the synthesis of Ti aluminides, *VII International Symposium on Self-propagating High-temperature Synthesis (SHS)*, Cracow, Poland (2003).
- 179.C A. Concas (speaker) and **G. Cao**, “Risanamento chimico: trattamenti chimico-fisici”, *II SUMMER SCHOOL RICERCA, SPERIMENTAZIONE E SVILUPPO DI TECNOLOGIE DI BONIFICA DI SITI CONTAMINATI*, Cengio (SV), Italy (2003).
- 180.C E. Musu, F. Delogu, S. Caschili and **G. Cao**, “Meccanochimica per la degradazione di composti inquinanti”, *VI Convegno del Consorzio INCA*, Palermo, Italy (2003).
- 181.C A. Cincotti (speaker), A. Locci, F. Delogu, R. Orrù and **G. Cao**, “Advanced Modeling Approach for Self-propagating High-temperature Synthesis of Ceramics”, *AIChE Annual Meeting*, San Francisco, USA (2003).
- 182.C A. Locci (speaker), R. Orrù, **G. Cao** and Z. A. Munir, “Field-Activated Pressure-assisted Synthesis of NiTi”, *AIChE Annual Meeting*, San Francisco, USA (2003).
- 183.C(CP) **G. Cao** and M. Maalmi, “Reazioni solido-solido non catalitiche anche autopropaganti per la sintesi di materiali innovativi”, *Proceedings of the II International Seminar on Sardinian and Developing Countries Universities Collaboration*, Pula (CA), Italy, *Rendiconti del Seminario della Facoltà di Scienze dell'Università di Cagliari, Supplemento 2003*, 355-357 (2003).
- 184.C(CP) M. Pisu, N. Lai, A. Concas, A. Cincotti and **G. Cao**, “Growth of engineered cartilage in rotating bioreactors : a simulation model”, *Convegno GRICU 2004*, Ischia (NA), Italy, 257-260 (2004).
- 185.C(CP) S. Caschili, F. Delogu and **G. Cao**, “Mechanochemical degradation of organic pollutants”, *Convegno GRICU 2004*, Ischia (NA), Italy, 733-736 (2004).
- 186.C(CP) R. Orrù, A. Cincotti and **G. Cao**, “Self-propagating reactions for environmental applications”, *Convegno GRICU 2004*, Ischia (NA), Italy, 821-824 (2004).



- 187.C(CP) A.M. Locci, R. Orrù, A. Cincotti and **G. Cao**, “Sintesi e simultaneo consolidamento di materiali innovative mediante la tecnologia Spark Plasma Sintering (SPS)”, *GRICU 2004, Ischia (NA), Italy*, 1115-1118 (2004).
- 188.C(CP) A.M. Locci, A. Cincotti, F. Delogu, R. Orrù and **G. Cao**, “Advanced modelling of self-propagating high-temperature synthesis”, *GRICU 2004, Ischia (NA), Italy*, 1159-1161 (2004).
- 190.C A. M. Locci, A. Cincotti, R. Orrù, **G. Cao**, “REACTIVITY OF SOLIDS IN THE SYNTHESIS AND DENSIFICATION OF ADVANCED MATERIALS BY SPARK PLASMA SINTERING”, *13<sup>th</sup> International Congress on Thermal Analysis and Calorimetry, Chia (CA), Italy* (2004).
- 191.C A. M. Locci, R. Orrù, A. Cincotti and **G. Cao**, “Simultaneous Spark Plasma Synthesis and Densification of Nanocrystalline TiC/TiB<sub>2</sub> Composites”, *SAMIC 2004, Bressanone, Italy* (2004).
- 192.C R. Orrù, **G. Cao**, Z. A. Munir, “Synthesis of dense nanometric MoSi<sub>2</sub> by Spark Plasma Synthesis”, *Nanotech IT Newsletter*, 2 (2004).
- 193.C(CP) R. Licheri, R. Orrù, **G. Cao**, J. De Wilde, I. Agote, L. Froyen, A. E. Sytschev, A. S. Rogachev, “COSMIC: COMBUSTION SYNTHESIS UNDER MICROGRAVITY CONDITIONS”, Topical Team ESA Special Publication, SP-1281 (2005).
- 194.C(CP) M. Pisu, N. Lai, A. Concas and **G. Cao**, “Simulation of engineered cartilage growth in static bioreactors”, *Proceedings of the VII Italian Conference on Chemical and Process Engineering, Chemical Engineering Transactions, S. Pierucci Editor*, 37-42, (2005).
- 195.C(CP) R. Licheri, R. Orrù and **G. Cao**, “Self-propagating High-temperature Synthesis of perovskites and subsequent densification by Spark Plasma Sintering (SPS)”, *Proceedings of the VII Italian Conference on Chemical and Process Engineering, Chemical Engineering Transactions, S. Pierucci Editor*, 485-490, (2005).
- 196.C(CP) A. Locci, R. Orrù, A. Cincotti and **G. Cao**, “Synthesis and densification of Carbides- and Borides- based materials by SPS”, *Proceedings of the VII Italian Conference on Chemical and Process Engineering, Chemical Engineering Transactions, S. Pierucci Editor*, 509-514, (2005).
- 197.C F. Lemoisson, J. De Wilde, R. Orrù, I. A. Beloki, A. E. Sytschev, A. S. Rogachev, L. Froyen and **G. Cao**, “Titanium diboride – Titanium aluminides composites prepared by SHS under normal and microgravity conditions: a microstructural study”, *VIII International Symposium on Self-propagating High-temperature Synthesis (SHS), Cagliari, Italy* (2005).

- 198.C R. Licheri, R. Orrù and **G. Cao**, “Self-propagating High-temperature Synthesis of perovskites and subsequent densification by Spark Plasma Sintering (SPS)”, *VIII International Symposium on Self-propagating High-temperature Synthesis (SHS)*, Cagliari, Italy (2005).
- 199.C A. Locci, R. Orrù, A. Cincotti and **G. Cao**, “Synthesis and densification of Carbides- and Borides- based materials by SPS”, *VIII International Symposium on Self-propagating High-temperature Synthesis (SHS)*, Cagliari, Italy (2005).
- 200.C **G. Cao**, A. Cincotti, R. Licheri, A. Locci and R. Orrù, “Preparation of dense carbides-, borides- and perovskite-based materials by SPS”, *V Convegno Nazionale sulla Scienza e Tecnologia dei Materiali*, Cagliari, Italy (2005).
- 201.C L. Montanaro, **G. Cao** and T. Manfredini, “LINCE: an INSTM reference centre devoted to ceramics technology and engineering”, *V Convegno Nazionale sulla Scienza e Tecnologia dei Materiali*, Cagliari, Italy (2005).
- 202.C R. Licheri, R. Orrù and **G. Cao**, “Spark Plasma Sintering of perovskitic powders obtained by Self-propagating High-temperature Synthesis”, *V Convegno Nazionale sulla Scienza e Tecnologia dei Materiali*, Cagliari, Italy (2005).
- 203.C A. Locci, R. Orrù, A. Cincotti and **G. Cao**, “Spark Plasma Sintering Synthesis and densification of Carbides- and Borides- based composites”, *V Convegno Nazionale sulla Scienza e Tecnologia dei Materiali*, Cagliari, Italy (2005).
- 204.C A. Locci, R. Orrù, A. Cincotti, R. Licheri and **G. Cao**, “Remarks on gravity-driven transport phenomena during combustion synthesis processes”, *ELGRA biennial meeting 2005*, Santorini, Greece (2005).
- 205.C Locci, AM; Orrù, R; Cincotti, A and **Cao, G**, “Synthesis and simultaneous densification of composite materials by Spark Plasma Sintering (SPS)”, *7th World Congress of Chemical Engineering*, Glasgow, Scotland (2005).
- 206.C Pisu, M; Lai, N; Concas, A and Cao, G, “Modeling of engineered cartilage growth in bio-reactors”, *7th World Congress of Chemical Engineering*, Glasgow, Scotland (2005).
- 207.C **G. Cao** and R. Orrù, “Tecnologie per la sintesi di materiali innovative”, *Giornata del distretto tecnologico del Sulcis-Iglesiente*, Iglesias, Italy, 31 March (2006).

- 208.C A.M. Locci, R. Licheri, R. Orrù, A. Cincotti, **G. Cao**, J. De Wilde, F. Lemoisson, L. Froyen, I.A. Beloki, A.E. Sytshev, A.S. Rogachev, D.J. Jarvis, "Self-propagating combustion synthesis under microgravity conditions: theoretical analysis of experimental evidences", *Science on European Soyuz Missions to the ISS (2001-2005)*, Toledo, Spain, 27-30 June (2006).
- 209.C G. Neri, A. Bonavita, G. Micali, R. Licheri, R. Orrù and **G. Cao**, "Resistive  $\lambda$ -sensors based on ball milled Fe doped-SrTiO<sub>3</sub> nanopowders obtained by self-propagating high-temperature synthesis (SHS)", *E-MRS IUMRS ICEM 2006 May 29 - June 2 - Nice, France* (2006).
- 210.C S. Montinaro, A. Concas, M. Pisu and **G. Cao**, "Remediation of heavy metals contaminated soils by ball milling", *VIII Congresso INCA "Chimica sostenibile e tecnologie ambientali: stato dell'arte e prospettive" 23-24 March, Bologna, Italy* (2006).
- 211.C A. Concas, S. Montinaro, M. Pisu and **G. Cao**, "Mechanochemical remediation of heavy metals contaminated soils", *First Mediterranean Congress on Chemical Engineering for Environment, Venice, San Servolo, Italy, October 4-6* (2006).
- 212.C A. Concas, S. Montinaro, M. Pisu and **G. Cao**, "Mechanochemical remediation of heavy metals contaminated soils: modelling and experiments", *International Symposia on Chemical Reaction Engineering September 3 - 6, Potsdam/Berlin, Germany* (2006).
- 213.C G. Neri, A. Bonavita, G. Micali, R. Licheri, R. Orrù and **G. Cao**, "Resistive  $\lambda$ -sensors based on Fe-SrTiO<sub>3</sub> nanopowders", *AISEM Sensori e Microsistemi 2007, Napoli, Italy* (2007).
- 214.C(CP) R. Licheri, R. Orrù and **G. Cao**, G. Neri, A. Bonavita, G. Micali and G. Rizzo "Oxygen sensing properties of Fe doped-SrTiO<sub>3</sub> powders obtained by self-propagating high-temperature synthesis (SHS) and treated by ball milling (BM)", *Proceeding of the Eighth International Conference on Chemical and Process Engineering, ICHEAP8, Chemical Engineering Transactions, Editor Pierucci, Publisher AIDIC Servizi SRL, 11*, 845-850 (2007).
- 215.C(CP) R. Orrù, R. Licheri, Antonio Mario Locci, Clara Musa and **G. Cao**, "Production of fully dense ZrB<sub>2</sub>-SiC UHTC materials", *Proceeding of the Eighth International Conference on Chemical and Process Engineering, ICHEAP8, Chemical Engineering Transactions, Editor Pierucci, Publisher AIDIC Servizi SRL, 11*, 755-760 (2007).
- 216.C(CP) S. Montinaro, A. Concas, M. Pisu, S. Fadda, A. Cincotti, and **G. Cao**, "Immobilization of heavy metals in contaminated soils", *Proceeding of the Eighth International Conference on Chemical and Process Engineering, ICHEAP8, Chemical Engineering Transactions, Editor Pierucci, Publisher AIDIC Servizi SRL, 11*, 797-802 (2007).

- 217.C(CP) M. Pisu, A. Concas, and **G. Cao**, "Modeling of stem cells differentiation", *Proceeding of the Eighth International Conference on Chemical and Process Engineering, ICHEAP8, Chemical Engineering Transactions, Editor Pierucci, Publisher AIDIC Servizi SRL, 11, 803-807 (2007).*
- 218.C(CP) A. Concas, and **G. Cao**, "Caratterizzazione dello stato di inquinamento del bacino idrografico dei rii Irvi e Piscinas (Sardegna)", *Progetto n° 1999/IT.16.1.PO.011/3.13/7.2.4/339 Prot. 238, "FORMAZIONE PER LA RICERCA NEL CAMPO DELLA BONIFICA DEI SITI CONTAMINATI", Atti della Regione Sicilia, in corso di stampa (2007).*
- 219.C(CP) D. Marzorati, E. Merlone Borla, M. Lattore, G. Carturan, E. Callone, G. Neri, G. Micali, A. Bonavita, E. Roncari, A. Sanson, C. Di Natale, E. Martinelli, G. Pennazza, R. Paolesse, P. Siciliano, A. Forleo, S. Capone, A.M. Taurino, B. Debenedetti, F. Deorsola, S. Iannotta, T. Toccoli, N. Coppedè, R. Licheni, R. Orrù and **G. Cao**, "Firb "square" project: Nano-structured sensors for the detection of the polluting IC engine exhaust gases and for indoor air quality monitoring", *Proceedings AISEM Congress 2008, Rome, Italy (2008).*
- 220.C R. Licheri, R. Orrù, C. Musa, A.M. Locci, and **G. Cao**, "Spark Plasma Sintering of ZrB<sub>2</sub>- and HfB<sub>2</sub>-based UHTCs prepared by Self-propagating High-temperature Synthesis", *First Workshop on Science and Technology of UHTC-based Hot Structures CIRA, Capua, Italy (2008).*
- 221.C A. Cincotti, A.M. Locci, R. Licheni, R. Orrù, and **G. Cao**, "SPS kinetic studies and modeling of the apparatus", *International Workshop on SPS, Avignon, France (2008).*
- 222.C(CP) S. Todde, A. M. Locci, A. Cincotti, R. Orrù and **G. Cao**, "Modeling of heat and mass transfer during selfpropagating reactions in the Ti-Fe-C ternary system", *Convegno GRICU, Le Castelle, Italy (2008).*
- 223.C(CP) S. Fadda, A. Cincotti, A. Concas, M. Pisu and **G. Cao**, "Modelling breakage and reagglomeration phenomena during fine dry grinding in ball milling devices", *Convegno GRICU, Le Castelle, Italy (2008).*
- 224.C(CP) L. Mancuso, M. I. Liuzzo, M. Pisu, A. Cincotti, S. Fadda, A. Concas and **G. Cao**, "Experimental analysis and modelling of bone marrow mesenchymal cells proliferation", *Convegno GRICU, Le Castelle, Italy (2008).*
- 225.C(CP) S. Montinaro, A. Concas, M. Pisu and **G. Cao**, "Remediation by ball milling of heavy metals contaminated soils from mining areas", *Convegno GRICU, Le Castelle, Italy (2008).*
- 226.C(CP) R. Licheri, R. Orrù, C. Musa, A.M. Locci and **G. Cao**, "Fabrication of Ultra-High Temperature Ceramic Materials for Extreme Environment Applications", *Convegno GRICU, Le Castelle, Italy (2008).*

- 227.C R. Licheri, R. Orrù, A.M. Locci, A. Cincotti, and **G. Cao**, “Innovative Technologies for the Fabrication of Ultra-High Temperature Ceramic Materials for Extreme Environment Applications” *The 20<sup>th</sup> International Symposium on Chemical Reaction Engineering (ISCRE 20)*, Kyoto, Japan, 7-10 September (2008).
- 228.C L. Mancuso, M.I. Liuzzo, S. Fadda., M. Pisu, A. Cincotti, and **G. Cao**, “Experimental Analysis and Modelling of Bone Marrow Mesenchymal Stem Cells (BMSC) Proliferation”. *The 20<sup>th</sup> International Symposium on Chemical Reaction Engineering (ISCRE 20)*, Kyoto, Japan, 7-10 September (2008).
- 229.C(CP) R. Licheri, R. Orru', C. Musa and **G. Cao**, “Fabrication of fully dense ZrB<sub>2</sub>- and HfB<sub>2</sub>-based ultra high temperature ceramics by combining self-propagating high-temperature synthesis and spark plasma sintering”, *Chemical Engineering Transactions*, **17**, 1699-1704, DOI: 10.3303/CET0917285, (2009).
- 230.C(CP) S. Fadda, A. Cincotti and **G. Cao**, “A population balance approach for the description of water osmosis and intracellular ice formation during cryopreservation, *Chemical Engineering Transactions*, **17**, 1125-1130, DOI: 10.3303/CET0917188, (2009).
- 231.C(CP) A. Concas, M. Pisu and **G. Cao**, “Novel modelling approach of photobioreactors for CO<sub>2</sub> sequestration by microalgae and bio-oil production”, *Chemical Engineering Transactions*, **17**, 1113-1118, DOI: 10.3303/CET0917186, (2009).
- 232.C(CP) L. Mancuso, M.I. Liuzzo, S. Fadda, M. Pisu, A. Concas, A. Cincotti and **G. Cao**, “Experimental analysis and modeling of in vitro mesenchymal stem cells proliferation, *Chemical Engineering Transactions*, **17**, 1059-1064, DOI: 10.3303/CET0917177, (2009)
- 233.C(CP) S. Fadda, A. Cincotti and **G. Cao**, “Modelling breakage and reagglomeration during fine dry grinding in ball milling devices, *Chemical Engineering Transactions*, **17**, 687-692, DOI: 10.3303/CET0917115, (2009).
- 234.C(CP) S. Montinaro, A. Concas, M. Pisu and **G. Cao**, “Rationale of heavy metals immobilization by ball milling in synthetic soils and remediation of heavy metals contaminated tailings, *Chemical Engineering Transactions*, **17**, 263-268, DOI: 10.3303/CET0917045, (2009).
- 235.C R. Licheri, C. Musa, R. Orrù, A. M. Locci and **G. Cao**, “Fabrication of dense Zr-, Hf- and Ta-based Ultra High Temperature Ceramics by the combination of Self-propagating High-temperature Synthesis and Spark Plasma Sintering”, *8th Pacific Rim Conference*, Vancouver, Canada, 1-5 June (2009).
- 236.C(CP) R. Licheri, C. Musa, R. Orrù, A. M. Locci and **G. Cao**, , "Efficient Technologies for the Fabrication of dense ZrB<sub>2</sub>- and HfB<sub>2</sub>-based Ultra High Temperature Ceramics", *ISMSE11 Symposium*, Aix en provence, France, September (2009).

- 237.C G. Corrias and **G. Cao**, "ISRU (In Situ Resource Utilization) and ISFR (In Situ Fabrication and Repair): an overview", *SpaceLand 1<sup>st</sup> Expo Congress 2009*, Chia (CA), Italy, September (2009).
- 238.C R. Orrù, R. Licheri and **G. Cao**, "Self-propagating High-temperature Synthesis (SHS) under microgravity conditions", *SpaceLand 1<sup>st</sup> Expo Congress 2009*, Chia (CA), Italy, September (2009).
- 239.C (CP) L. Mancuso, M. Scanu, M. Pisu, A. Concas and **G. Cao**, "In vitro HUVECs proliferation in the presence of various types of drugs: experimental analysis and mathematical modeling", *Chemical Engineering Transactions*, **24**, 997-1002 (2011).
- 240.C (CP) S. Fadda, A. Cincotti and **G. Cao**, "A population balance model to investigate the effect of microgravity on the kinetics of in-vitro cell proliferation", *Chemical Engineering Transactions*, **24**, 1003-1008 (2011).
- 241.C (CP) S. Todde, R. Licheri, R. Orrù and **G. Cao**, "Spark plasma sintering of cryomilled CoNiCrAlY powders", *Chemical Engineering Transactions*, **24**, 1501-1506 (2011).
- 242.C G.A. Lutz (speaker), A.M. Locci and **G. Cao**, "Effect of nutrient limitation on the growth of *Nannochloris eucaryotum* for CO<sub>2</sub> sequestration and bio-oil production", *3rd International Conference on Applied Energy*, Perugia, Italy, May (2011).
- 243.C M. Scanu, L. Mancuso and **G. Cao**, "Human mesenchymal stem cells for acute toxicity tests", *15th International Symposium on Toxicity Assessment (ISTA15)*, Hong Kong, China, July (2011).
- 244.C G. Corrias, R. Licheri, R. Orrù and **G. Cao**, "Self-Propagating High-Temperature Synthesis Reactions for ISRU and ISFR Applications", *International SHS 2011*, Anavyssos, Greece, September (2011).
- 245.C M. Scanu, L. Mancuso, G. Cao "Evaluation of the use of human mesenchymal stem cells for acute toxicity tests" *47<sup>th</sup> Congress of the European Society of Toxicology (EUROTOX 2011)*, Paris, France, August (2011).
- 246.C S. Montinaro, A. Concas, M. Pisu and **G. Cao**, "Remediation by ball milling of heavy metals contaminated soils", *Convegno "La Chimica in Sardegna nell'Anno della Chimica"*, Alghero, Italy, October (2011).
- 247.C G.A. Lutz, A. M. Locci, G. Corrias and **G. Cao**, "Effect of medium composition on the growth of *Nannochloris eucaryotum* in batch photobioreactors", *Convegno "La Chimica in Sardegna nell'Anno della Chimica"*, Alghero, Italy, October (2011).

- 248.C G. Corrias, R. Licheri, R. Orrù and **G. Cao**, “Fabrication of lunar and martian physical assets by SHS reactions”, *Nonisothermal Phenomena & Processes: from Thermal Explosion Theory to Structural Macrokinetics* devoted to the 80th birthday Prof. Alexander G. Merzhanov, Chernogolovka, Russia, November (2011).
- 249.C G. A. Lutz, A. Concas and **G. Cao**, “ON THE POTENTIAL UTILIZATION OF NANNOCHLORIS EUCARYOTUM AS FEEDSTOCK FOR CO<sub>2</sub> CAPTURE AND BIOFUELS PRODUCTION”, *International Conference - Environmental Microbiology and Biotechnology in the frame of the Knowledge-Based Bio and Green Economy*, Bologna, Italy, April (2012) – Abstract published in *Environmental Engineering and Management Journal* 2012
- 250.C C. Musa (speaker), R. Licheri, R. Orrù and **G. Cao**, “Fabrication of fully dense UHTC by combining SHS and SPS”, *Italian-Russian Workshop - New achievements and challenges in self-propagating high-temperature synthesis*, Cagliari, Italy, April (2012).
- 251.C G. Corrias (speaker), R. Licheri, R. Orrù, A. Concas, M. Pisu and **G. Cao**, “Development of new processes for ISRU and ISFR applications on Moon and Mars”, *Italian-Russian Workshop - New achievements and challenges in self-propagating high-temperature synthesis*, Cagliari, Italy, April (2012).
- 252.C L. Mancuso, M. Scanu and **G. Cao**, “Sviluppo di protesi vascolari ingegnerizzate a partire da vasi sanguigni decellularizzati”, *Terzo Congresso Gruppo Nazionale di Bioingegneria*, Roma, Italy, June (2012).
- 253.C B. Frongia, C. Coluccia, L. Mancuso and **G. Cao**, “Terapia genica e cellule staminali: una breve review”, *Terzo Congresso Gruppo Nazionale di Bioingegneria*, Roma, Italy, June (2012).
- 254.C L. Mancuso, M. Scanu, M. Pisu, A. Concas and **G. Cao**, “Experimental analysis and modelling of in vitro HUVECs proliferation in the presence of various types of drugs”, *Congresso GRICU 2012*, Montesilvano (PE), Italy, September (2012).
- 255.C A. Concas, G. Lutz, A. Locci and **G. Cao**, “Nannochloris eucaryotum growth in batch photobioreactors: kinetic analysis and use of 100% (v/v) CO<sub>2</sub>”, *Congresso GRICU 2012*, Montesilvano (PE), Italy, September (2012).
- 256.C G. Corrias, R. Licheri, R. Orrù and **G. Cao**, “In-Situ Fabrication of Lunar physical assets by a Self-propagating High-temperature Process”, *Congresso GRICU 2012*, Montesilvano (PE), Italy, September (2012).
- 257.C (CP) G. Corrias, R. Licheri, R. Orrù, M. Pisu, A. Concas, A. Lorenzoni and **G. Cao** (speaker), “A novel process for the production of lunar and martian physical assets and its exploitation for future space missions”, *Proceedings of the*

*International Astronautical Congress 2012*, Naples, Italy, Volume 11, 2012, 9258-9268, September (2012).

- 258.C A. Concas, G. Corrias, A. Steriti and **G. Cao** (speaker), “Coltivazione di microalghe per la produzione di biopetrolio e prodotti ad alto valore aggiunto”, Congresso Annuale Consorzio INCA c/o Ecomondo, Rimini (BO), Italy, November (2012).
- 259.C A. Concas, M. Pisu and **G. Cao** (speaker), “Semi-batch photobioreactors for microalgae growth operated under extreme conditions”, ECCE9, The Hague, The Netherlands, April (2013).
- 260.C E. Pieroni, A. Kumar, M. Pisu, V. Genna, A. Concas and **G. Cao** (speaker), “Analysis of the inhibitory effect of antipsychotic drugs during in-vitro cell proliferation through classical and molecular modeling approach”, ECCE9, The Hague, The Netherlands, April (2013).
- 261.C (CP) G. Corrias, R. Licheri, R. Orrù and **G. Cao** (speaker), “A systematic investigation to obtain physical assets on the Moon through Self-propagating High-temperature Reactions”, *Chemical Engineering Transactions*, **32**, 697-702 (2013).
- 262.C (CP) E. Pieroni, A. Kumar, M. Pisu, V. Genna, A. Concas and **G. Cao**, “Combination of classical and molecular modeling approaches to investigate the effect of antipsychotic drugs on cell proliferation kinetics”, *Chemical Engineering Transactions*, **32**, 787-792 (2013).
- 263.C (CP) A. Concas, M. Pisu and **G. Cao** (speaker), “Mathematical modeling of *Chlorella Vulgaris* growth in semi-batch photobioreactors fed with pure CO<sub>2</sub>”, *Chemical Engineering Transactions*, **32**, 1021-1026 (2013).
- 264.C (CP) L. Nikzad, R. Orrù, R. Licheri and **G. Cao**, “Influence of mechanical and electric current activation on the mechanism of formation and the properties of bulk B<sub>4</sub>C-TiB<sub>2</sub> composites obtained by reactive sintering”, *Chemical Engineering Transactions*, **32**, 1669-1674 (2013).
- 265.C G. Corrias, R. Licheri, R. Orrù and **G. Cao**, “Development of novel ISRU and ISFR technologies to sustain future manned missions on Moon and Mars”, 19<sup>th</sup> Humans in Space Symposium, Cologne, Germany, July (2013).
- 266.C G. Corrias (speaker), R. Licheri, R. Orrù and **G. Cao**, “SELF-PROPAGATING HIGH-TEMPERATURE REACTIONS FOR THE IN-SITU FABRICATION OF LUNAR AND MARTIAN PHYSICAL ASSETS”, ELGRA-AIMAS Symposium 2013, Rome, Italy (2013).
- 267.C A. Concas, R. Cusano, M. Orsini, C. Costelli, A. Angius and **G. Cao**, “Microalgae based technology for biofuels production and CO<sub>2</sub> capture: the role of mathematical modeling and genetic engineering”, Accademia dei Lincei, Convegno Internazionale LA SFIDA DEI TERAWATT: QUALE RICERCA PER L'ENERGIA DEL FUTURO?”, (best poster), Rome, Italy



- (2013).
- 268.C A. Concas, M. Pisu and **G. Cao**, “Microalgae based technology for biofuels production and CO<sub>2</sub> capture”, III Convegno Nazionale “Chimica e Tecnologie per la Salvaguardia Ambientale e lo Sviluppo Sostenibile”, Palermo, Italy (2013).
- 269.C A. Concas, C. Costelli, R. Cusano, M. Orsini, A. Angius and **G. Cao**, “The role of mathematical modeling and genetic engineering for the microalgae based technology”, GPE 4<sup>th</sup> International Congress on Green Process Engineering, Sevilla, Spain, February (2014).
- 270.C G. Corrias, A. Concas, R. Licheri, R. Orrù, M. Pisu and **G. Cao** (speaker), “Development of novel ISRU and ISFR technologies for space exploration”, Congresso Nazionale di Space Renaissance Italia, Milano, Italy, May (2014).
- 271.C (CP) A. Concas, A. Steriti, M. Pisu and **G. Cao** (speaker), “Mathematical modeling of the effect of iron on the growth and the bio-oil productivity of *Chlorella vulgaris*”, 4<sup>th</sup> International Conference on Industrial Biotechnology, Rome, Italy, June, Chemical Engineering Transaction, **38**, 181-186 (2014).
- 272.C L. Mancuso, A. Gualerzi, F. Boschetti, and **G. Cao**, “Decellularized Ovine Arteries as Small-Diameter Vascular Grafts”, Tissue Engineering and Regenerative Medicine International Society – EU Meeting, Genova, Italy, June (2014).
- 273.C R. Licheri, G. Corrias, R. Orrù, A. Concas, M. Pisu and **G. Cao** (speaker), “Space applications of SHS”, CIMTEC 2014, Montecatini Terme, Italy, June (2014).
- 274.C R. Orrù (speaker), R. Licheri, C. Musa and **G. Cao**, “Coupling SHS and SPS processes”, CIMTEC 2014, Montecatini Terme, Italy, June (2014).
275. C L. Mancuso, A. Gualerzi, F. Boschetti, F. Loy and **G. Cao**, “Analysis of the Decellularization Process of Ovine Carotids as Small-diameter Vascular Grafts”, Congresso del Gruppo Nazionale di Bioingegneria GNB Pavia, Italy, June (2014).
- 276.C R. Orrù, R. Licheri, C. Musa and **G. Cao** (invited speaker), “Zr-, Hf- and Ta-based Ultra High Temperature Ceramics for Thermal Protection Systems”, 1<sup>st</sup> International Symposium: “Hypersonic flight: from 100.000 to 400.000 ft”, Rome, Italy, June (2014).
- 277.C R. Orrù, R. Licheri, C. Musa and **G. Cao** (invited speaker), “Reactive and non-reactive Spark Plasma Sintering for the fabrication of UHTC materials”, 3<sup>rd</sup> International Workshop on Spark Plasma Sintering, Toulouse, France, July 16-18 (2014).
- 278.C P. Losi, E. Briganti, L. Mancuso, A. Gualerzi, T. Al Kayal, S. Celi, S. Volpi, **G. Cao** and G. Soldani, “Fabrication and Characterization of Gelatin-based

- Polyurethane Vascular Graft for Tissue-engineering Applications”, 26<sup>th</sup> European Conference on Biomaterials, Liverpool, UK, September 31<sup>st</sup> August-3<sup>rd</sup> (2014).
- 279.C C. Costelli, V. Malavasi, M. Orsini, R. Cusano, A. Concas, A. Angius and **G. Cao**, “Complete genome sequence of chloroplast and mitochondrial DNA of *Chlorella sorokiniana*”, Annual Meeting of the Italian Phycological Group, Padua, Italy, November 14-15<sup>th</sup> (2014).
- 280.C **G. Cao** and D. Pani, “La tecnologia della terra cruda in ambito extraterrestre per la realizzazione di elementi strutturali su Luna e Marte”, Convegno Internazionale VII Edizione Culture Festival IDEA Terrae 2014, Serramanna (CA), Italy, December 3-6<sup>th</sup> (2014).
- 281.C G. Corrias, R. Licheri, R. Orrù and **G. Cao** “Innovative technologies for Lunar physical assets production using In-Situ materials”, Moon 2020 -2030 - A New Era of Coordinated Human and Robotic Exploration, ESTEC, The Netherlands, December 15-16<sup>th</sup> (2015).
282. C A. Kumar, F. Delogu and **G. Cao**, "Dynamical aspects of cross-reactivity in a autoimmune TCR", Summer School on Modelling of Biological Systems, Sardegna Ricerche, Pula (CA), June 6-10<sup>th</sup> (2016).
- 283.C **G. Cao** (speaker), C. Musa, R. Licheri, R. Orrù and R. Marocco, “Ultra High Temperature Ceramics for Space Propulsion”, 2<sup>nd</sup> International Symposium. Hypersonic Flight: from 100,000 to 400,000 ft, Rome, June 30<sup>th</sup> – July 1<sup>st</sup> (2016).
- 284.C A. Concas, G. Corrias and **G. Cao** (speaker), “A process for the production of useful materials to sustain manned space missions on Mars through in-situ resources utilization”, European Mars Society Conference, 14/16th October (2016).
- 285.C V. Malavasi, S. Soru, A. Concas and **G. Cao**, “Selection, cultivation and innovative applications of microalgae from the SCCA culture collection”, Forum Italiano sulle Tecnologie Microalgali (FITEMI – 2017), 6/7th April (2017).
- 286.C A. Concas V. Malavasi, M. Pisu, S. Soru, and **G. Cao** (speaker), “Experiments and modeling of the growth of *c. sorokiniana* in lab batch and biocoil photobioreactors for lipid production”, IcheaP13, May 28-31 (2017).
- 287.C S. Soru, V. Malavasi, A. Concas and **G. Cao**, “Novel applications and high value products from SCCA culture collection's strains”, 17<sup>th</sup> Congress of the European Society for Photobiology, Pisa (Italy), September 4-8 (2017).
- 288.C A. M. Locci, R. Orrù and **G. Cao**, "Modeling of electric current assisted sintering for porous-graded materials design", International Conference on Sintering 2017, San Diego (USA), November 12-16 (2017).

- 289.C S. Soru, V. Malavasi, A. Concas and **G. Cao** (speaker), “Growth and lipid accumulation kinetics of *Coccomyxa melkonianii* scca 048: experimental and modeling”, ISCRE 25, Florence (Italy), May 20-23 (2018).
- 290.C A. Zuorro, V. Malavasi, **G. Cao** and R. Lavecchia, “Use of cell wall degrading enzymes to improve the recovery of lipids from *Chlorella sorokiniana*”, ISCRE 25, Florence (Italy), May 20-23 (2018).
- 291.C A. M. Locci (speaker), R. Orrù and **G. Cao**, “Mathematical modeling of spark plasma sintering: a sensitivity analysis of materials rheological parameters”, 4<sup>th</sup> International Workshop on SPS, Cagliari (Italy), May 23-25 (2018).
- 292.C M.Luginina, C. Drouet, F. Brouillet, D. Grossin, G. Chevallier, R. Orrù and **G. Cao**, “Spark plasma sintered reactive calcium phosphates: toward highly bioresorbable materials for biomedical applications”, 4<sup>th</sup> International Workshop on SPS, Cagliari (Italy), May 23-25 (2018).
- 293.C R. Licheri, C. Musa, R. Orrù and **G. Cao**, “Fabrication and characterization of bulk ultrarefractory ceramics by reactive and non reactive SPS”, 4<sup>th</sup> International Workshop on SPS, Cagliari (Italy), May 23-25 (2018).
- 294.C R. Orrù, G. Tallarita, R. Licheri and **G. Cao**, “Ultra-refractory Ceramics by Combination of SHS and SPS: Recent Advances”, 14<sup>th</sup> International Ceramics Congress CIMTEC, Perugia (Italy), June 4-8 (2018).

## **INVITED SEMINARS & CONFERENCES & EDUCATIONAL ARTICLES**

**Giacomo Cao**

1.S

"Experimental Analysis and Modeling of p-Xylene Liquid Phase Catalytic Oxidation", CDTech, Pasadena, Texas, USA (1992).

2.S

"Kinetics of p-Xylene Liquid Phase Catalytic Oxidation", Department of Chemical and Petroleum Engineering, University of Kansas, Lawrence, USA (1993).

3.S

"On the Liquid Phase Catalytic Oxidation of p-Xylene", Department of Chemical and Biochemical Engineering, University College London, London, United Kingdom (1993).

4.S

"Reattori Inorganici a Membrana: Effetto della Distribuzione del Catalizzatore", Dipartimento di Ingegneria Chimica e dei Materiali, Università degli Studi della Calabria, Arcavacata di Rende (CS), Italy (1994).

5.S

"Ossidazione catalitica del p-Xylene in Fase Liquida", Dipartimento di Ingegneria Chimica e dei Materiali, Università degli Studi della Calabria, Arcavacata di Rende (CS), Italy (1994).

6.S

"Meccanismi di formazione della struttura in processi di sintesi autopropagante ad alta temperatura: prospettive di contatto con la fisica microscopica", Dipartimento di Scienze Fisiche, Università di Cagliari, Cagliari, Italy (1996).

7.S

"Experimental Analysis and Modeling of Catalytic Oxidation of p-Xylene to Terephthalic Acid", AMOCO, Naperville, Illinois, USA (1996).

8.S

"Reazioni autopropaganti per il trattamento di residui industriali", Dipartimento di Chimica e Chimica Industriale, Università di Genova, Genova, Italy (1997).

9.S

"Materiali innovativi per sintesi autopropagante ad alta temperatura", CNR - TeMPE, Milano, Italy (1997).

10.S

"Topical Team Proposal on Combustion Synthesis and Microgravity", ESA Headquarters, Paris, France (1998).

11.S

"Self-Propagating High-Temperature Synthesis (SHS) Applications", Department of Chemical Engineering, University of Virginia, Charlottesville, Virginia, USA (1998).

12.S

"Reazioni Autopropaganti ad Alta Temperatura: Aspetti Fondamentali ed Applicazioni", Istituto di Chimica Fisica Applicata dei Materiali del Consiglio Nazionale delle Ricerche, Genova, Italy (1999).

13.S

"Environmental issues in SHS", Round Table – SHS in Chemical Engineering, V International Symposium on SHS – SHS'99, Moscow, Russia (1999).

14.S

"Group activity on self-propagating reactions", Annual Meeting of the Center for Commercial Applications of Combustion in Space, Golden, Colorado, USA (1999).

15.S

"Solid-solid high-temperature reaction modeling", Master di tecniche informatiche avanzate per la progettazione e simulazione, CRS4, Cagliari, Italy (1999).

16.S

"Analisi sperimentale e modellistica dell'ossidazione del p-xilene ad acido tereftalico", Università degli Studi di Bologna, Bologna, Italy (2000).

17.S

"Combustion Synthesis", PHYSICAL SCIENCES WORKING GROUP MEETING OF THE EUROPEAN SPACE AGENCY, NOORDWIJK, THE NETHERLANDS (2001).

18.S

"Il ruolo della chimica per l'ambiente per lo sviluppo sostenibile", Workshop Costruire uno sviluppo sostenibile", Cagliari, Italy (2001).

19.S

"Combustion Synthesis Processes" Workshop on mechanochemical methods, Alghero (SS), Italy (2001).

20.S

"Il ruolo della tecnica di sintesi autopropagante (SHS) ad alta temperatura", WORKSHOP "Materiali per lo spazio: sintesi, metodologie, tecnologie", BONASSOLA (SP), Italy (2001).

21.S

"Combustion Synthesis", Workshop "European Combustion Experiments in Space" Astrium GmbH, Immenstaad, Germany (2001).

22.S

"Il progetto del Laboratorio Promea – INSTM", Convegno "Il Promea nel parco scientifico e tecnologico regionale", Cagliari, Italy (2001).

21.S

“2002 Program of Parabolic Flight and ISS Combustion Synthesis Experiments”, Press Conference hosted by the President of the Sardinian Regional Government, Cagliari, Italy (2002).

22.S

“Sintesi di Materiali per Combustione”, Corso Seminariale di Metallurgia, Torino, Italy (2002).

23.S

“Risanamento chimico: trattamenti chimico-fisici”, I SUMMER SCHOOL RICERCA, SPERIMENTAZIONE E SVILUPPO DI TECNOLOGIE DI BONIFICA DI SITI CONTAMINATI, Cengio (SV), Italy (2002).

24.S

“2002 Parabolic Flight and ISS Combustion Synthesis Experiments”, Press Conference hosted by the Rector of Cagliari University, Cagliari, Italy (2002).

25.S

“Combustion Synthesis”, PHYSICAL SCIENCES WORKING GROUP MEETING OF THE EUROPEAN SPACE AGENCY, NOORDWIJK, THE NETHERLANDS (2003).

26.S

“Self-propagating high-temperature reactions: experimental results, modeling studies and potential applications”, Dipartimento di Chimica, Università di Sassari, Sassari, Italy (2003).

27.S

“Sintesi per combustione di materiali innovativi”, Colorobbia, Sovigliana (FI), Italy (2003).

28.S

“Sintesi per combustione di materiali innovativi”, Centro Sviluppo Materiali (CSM), Rome, Italy (2003).

29.S

“Sintesi per Spark Plasma Sintering (SPS) di materiali innovativi, Speciali Applicazioni Industriali del Diamante (SAID), Isola Vicentina (VI), Italy (2004).

30.S

“Trattamenti Termici”, Corso di aggiornamento professionale sulla Bonifica dei siti contaminati, Piacenza, Italy (2004).

31.S

“Progetto INCA – Monitoraggio, bonifica e ripristino di siti contaminati”, Ciclo itinerante di 6 incontri a tema. Il PON Ricerca nelle Regioni dell’Obiettivo 1: l’esperienza nella Regione Sardegna”, Sassari, Italy (2004).

32.S

“Synthesis process to obtain a magnesium diboride based superconductor, and product obtained through such a process”, Press Conference for the Italian patent submission hosted by the Dean of Engineering, Cagliari, Italy (2004).

33.S

“Spark Plasma Sintering (SPS): attività sperimentale e modellistica”, CRS4, Italy (2004).

35.S

“Synthesis process to obtain a magnesium diboride based superconductor, and product obtained through such a process”, Press Conference for the PCT extension patent submission hosted by the Dean of Engineering, Cagliari, Italy (2005).

36.S

“Esperienze di cooperazione e progetti di penetrazione economica”, Seminario della Camera di Commercio della Provincia di Cagliari – Nuovi mercati e prospettive di sviluppo nei paesi del Nord Africa, Cagliari, Italy (2005).

37.S

“Spaceland in Sardinia” shared with Carlo Viberti, Press Conference, Cagliari, Italy (2006).

38.S

“Synthesis process to obtain a magnesium diboride based superconductor, and product obtained through such a process”, Press Conference for the PCT (“Synthesis process to obtain a magnesium diboride based superconductor, and product obtained through such a process”) approval hosted by the Dean of Engineering, Cagliari, Italy (2006).

39.S

“Process for the preparation of dense Ultra-High- Temperature Composite products”, Press Conference for the PCT patent submission, Cagliari, Italy (2006).

40.S

“Nuove tecnologie per la bonifica e il ripristino ambientale di siti contaminati”, Press Conference at the end of the corresponding PON project sponsored by MUR, Cagliari, Italy (2007).

41.S

“SHS in Italy: an overview”, *International Conference on Historical Aspects of SHS in Different Countries*, Chernogolovka, Russia (2007).

42.S

“NAnoSTRUcured Dense MAterials”, Presentation of invited project to I-Techpartner, Rome, Italy (2007).

43.S

“Chimica per lo sviluppo sostenibile (CHISS)”, Presentation of the project, Cagliari, Italy (2008).

44.S

“Spin off and CNR-DET-Cagliari: one year after”, Press Conference, Cagliari, Italy (2008).

45.S

“Innovazione tecnologica e fonti alternative di energia: la Sardegna terra di eccellenza per la ricerca”, Forum ad inviti del Giornale di Sardegna, Cagliari, Italy (2008).

46.S

A. Concas and **G. Cao**, “Sequestro di CO<sub>2</sub> e produzione di biopetrolio mediante microalghe: la sfida sui processi”, *Informazione Ordine Ingegneri Provincia di Cagliari*, 109, 5-10 (2008).

47.S

“Scenari e prospettive interdisciplinari della pratica medica: l’ingegneria dei tessuti e la medicina rigenerativa”, Incontri seminariali interfacoltà: Il progresso della medicina e quello dell’arte medica a confronto, Cagliari, Italy (2009).

48.S

“DNM (Dense Nanostructured Materials) Srl: un nuovo spin off dell’Università di Cagliari”, Invited lecture Convegno Materiali Nanofasici, Iglesias, Italy (2009).

49.S

“DNM (Dense Nanostructured Materials) Srl”, Press Conference for the company start-up, Cagliari, Italy (2009).

50.S

“Sequestro di anidride carbonica e produzione di combustibili mediante microalghe”, Convegno EPolis, Cagliari, Italy (2009).

51.S

“Voli parabolici per la messa a punto di tecnologie per l’eplorazione spaziale”, Primo Campus di Turismo Scientifico Aerospaziale in Costa Smeralda, Olbia, Italy (2009).

52.S

“COSMIC project launch”, Press Conference, Cagliari, Italy (2009).

53.S

“COSMIC project advancements”, Press Conference, Rome, Italy (2010).

54.S

“Seminario Green Future – UNICA”, Cagliari, Italy (2011).

55.S

“COSMIC, una casa su Marte”, Qui si rifà l’Italia – Mostra Stazione Futuro, Torino, Italy (2011).

56.S

“Filed patents from COSMIC project”, Press Conference, Rome, Italy (2011).



57.S

“Nuove tecnologie per l’plorazione umana dello spazio”, Festa Nazionale Democratica dell’Università e della Ricerca, Cagliari, Italy (2011).

58.S

“Nuove tecnologie per l’plorazione umana dello spazio”, La Notte dei Ricercatori, Cagliari, Italy (2011).

59.S

A. Concas and **G. Cao**, “Riduzione di gas serra con tecnologie a microalghe e produzione di biopetrolio”, *La Chimica e l’Industria*, **8**, 37-38 (2011).

60.S

“Outputs of the COSMIC project”, Technical Meeting at Head of Exploration Architecture Office (HSF-ID), Directorate of Human Spaceflight – ESA, Noordwijk, The Netherlands (2011).

61. S

**G. Cao**, A. Concas, G. Corrias, R. Licheri, R. Orrù and M. Pisu, “Development of Novel ISRU and ISFR Technologies for Future Manned Space Missions”, *Mars Transactions*, **4**, 16-18 (2011).

62.S

“Nuove tecnologie per l’esplorazione umana dello spazio”, Seminari per la Valorizzazione dei Risultati della Ricerca al CRS4, Cagliari, Italy (2012).

63.S

A. Concas, G. Corrias, R. Orrù, R. Licheri, M. Pisu and **G. Cao**, “Reperimento in-situ di materie prime utili per il sostentamento di missioni umane nello spazio”, Giornata di studio su "Space farming", *Tomo II degli Atti 2012 dell'Accademia dei Georgofili* (2012).

64.S

Invited speaker at the Industrial Frontiers session (a special forum for quality contributions that highlights important industrial developments and related topics that are expected to be of large interest to the ISCRE community) of ISCRE (International Symposium on Chemical Reaction Engineering) 22 “[Combination of classical and molecular modeling approaches to investigate the action mechanism of various types of drugs on cell proliferation kinetics](#)”, Maastricht, The Netherlands (2012).

65.S

Invited speaker at the III Regional Conference on Research and Innovation in the session “I cluster tecnologici nazionali come miglioramento della competitività del territorio ed il contributo della Sardegna”, Cagliari, Italy (2012).

66.S

Invited speaker at the “Terzo Incontro in ASI sui Centri regionali di competenze spaziali e il loro finanziamento” to present “the Space Activities in Sardinia: COSMIC project and beyond”, Roma, Italy (2012).

67.S

Invited speaker at the Workshop “Dalla Nanomedicina al Brain imaging. Le nuove frontiere delle Nanobiotecnologie” to present “Current Trends in Biomedical Engineering and Recent Results”, Parco Scientifico e Tecnologico, Pula (CA), Italy (2013).

68.S

Invited speaker at the European Space Expo to present “Le tecnologie per l’esplorazione dello spazio”, Piazza del Popolo, Rome, Italy (2013).

69.S

Invited speaker at La Notte dei Ricercatori to present “Nuove tecnologie per l’esplorazione robotica e umana dello spazio”, Piazza Mameli, Nuoro, Italy (2013).

70.S

“DASS (Distretto Aerospaziale Sardegna) Scarl”, Press Conference shared with the President of the Sardinian Regional Government to introduce the company start-up, Cagliari, Italy (2013).

71.S

Invited speaker at Rotary to present “La Sardegna nello spazio”, Cagliari, Italy (2013).

72.S

“Dallo spazio ipogeo allo spazio cosmico”, Istituto Tecnico Minerario “Giorgio Asproni”, Iglesias (CA), Italy (2014).

73.S

“Geografia dello Spazio”, Istituto Comprensivo “C. Nivola”, Iglesias (CA), Italy (2014).

74.S

“Nuove tecnologie per l’esplorazione umana e robotica dello spazio”, Giornate Orientamento, University of Cagliari, Monserrato (CA), Italy (2014).

75.S

“Nuove tecnologie per l’esplorazione umana e robotica dello spazio”, Presentation for last-year-high-school students, University of Cagliari, Cagliari, Italy (2014).

75.S

**G. Cao**, G. Storti and M. Masi, “Massimo Morbidelli Festschrift Preface”, *Industrial Engineering Chemistry Research*, **53**, 8937–8938 (2014)  
<http://pubs.acs.org/toc/iecred/53/22>

76.S

Invitation to participate to “La Repubblica degli Innovatori”, Cagliari, Italy (2014)  
[http://www.repubblica.it/next/2014/07/10/news/anno\\_2030\\_destinazione\\_marte\\_anch\\_e\\_con\\_ricerca\\_e\\_brevetti\\_sardi\\_ma\\_occorrono\\_fondi\\_da\\_investire-91178758/](http://www.repubblica.it/next/2014/07/10/news/anno_2030_destinazione_marte_anch_e_con_ricerca_e_brevetti_sardi_ma_occorrono_fondi_da_investire-91178758/)

77.S

“DASS (Distretto Aerospaziale Sardegna) Scarl”, Press Conference shared with the Vice-President of the Sardinian Regional Government to introduce the occurred capital increase and the new shareholders: Avio SpA, Karalit Srl, Nemea Sistemi Srl, Nurjana Technologies Srl, Cagliari, Italy (2015).

78.S

“DASS (Distretto Aerospaziale Sardegna) Scarl”, Press Conference to introduce its logo and the new shareholder: Centro Italiano Ricerche Aerospaziali (CIRA) ScpA, Cagliari, Italy (2015).

79.S

“Produzione di materiali per il sostentamento di missioni umane su Luna e Marte mediante l’utilizzo di risorse disponibili in-situ”, La nascente industria del volo spaziale civile, Milano, Italy (2015).

80.S

“Prospettive di sviluppo dell’aerospazio in Sardegna”, Ricerca scientifica, scuola, industria e opportunità internazionali c/o Istituto Giua, Cagliari, Italy (2015).

81.S

“Environmental and space application of SHS”, Plenary lecture at the International Symposium of SHS, Antalya, Turkey (2015).

82.S

“Materiali per altissime temperature”, Congresso Nazionale di Futurologia, Napoli, Italy (2015).

83.S

“DASS (Distretto Aerospaziale Sardegna) Scarl”, Press Conference to introduce the occurred capital increase and the new shareholders: Aeronike Srl, GEM Elettronica Srl, MR8 Srls, Oben Srl, U-Avitalia Srl, Cagliari, Italy (2016).

84.S

“Chemical engineering for biological and spatial applications”, Conference in the framework of the PhD program in Chemical and Materials Engineering, University of Calabria, Rende (CS), Italy (2016)

85.S

“Marte e l’abitabilità dei mondi, quando l’immaginazione scientifica sposa la fantascienza”, Rassegna culturale “Scienza e fantascienza tra conoscenza inquietudine e meraviglia” promossa dalla Biobiblioteca Provinciale, Cagliari, Italy (2016).

86.S

“Activities of the Sardinian AeroSpace District (DASS) Scarl”, International Course on Space Optical Engineering, Poltu Quatu (SS), Italy (2016).

87.S

“Zr-, Hf- and Ta-based Ultra High Temperature Ceramics for the Space Environment”, Workshop “Materials in the Space Environment” at Italian Space Agency, Rome, Italy (2016).

88.S

“Il paradigma dello sviluppo tecnologico in Sardegna”, Giornata dell’Associazione Termotecnica Italiana Sezione Sardegna - I gas liquefatti protagonisti dello sviluppo nelle imprese sarde, grazie alla cogenerazione ed alla riduzione delle emissioni – Cagliari, Italy (2016).

89.S

“Presentazione del Distretto AeroSpaziale della Sardegna”, 10<sup>th</sup> PAMIR International Conference - Fundamental and Applied MHD, Cagliari, Italy (2016).

90.S

“Presentazione del Distretto AeroSpaziale della Sardegna”, International summer school in Engineering and Management of Industrial Systems – EMIS2016, Carbonia (CA), Italy (2016).

91.S

Speaker at the Round Table “The difficulties of industrial activities in Sardinia”, FiomInFesta, Sarroch (CA), Italy (2016).

92.S

Deposition at the Parliamentary Committee of Inquiry on “depleted uranium”, Cagliari Prefecture, Cagliari, Italy (2016).

93.S

“Dibattito con riferimento al film *Il viaggio sulla Luna*”, Rassegna culturale “Scienza e fantascienza tra conoscenza inquietudine e meraviglia” promossa dalla Biblioteca Provinciale, Cagliari, Italy (2016).

94.S

“Novel ISRU and ISFR technologies for space exploration”, China - Italy Science Technology and Innovation Week, Naples, Italy (2016)

95.S

“L'aerospazio in Sardegna: analisi e prospettive”, Unisulky S'ischiglia Network - Università Popolare del Sulcis, Carbonia (CA), Italy (2016).

96.S

“Infrastrutture militari disponibili in Sardegna per progetti aerospaziali di natura civile”, Presentazione CalendEsercito 2017 “Innovazioni della grande guerra”, Cagliari, Italy (2016).

97.S

“L’aerospazio in Sardegna”, Seminario “Giovani, lavoro, nuove tecnologie”, Arcivescovado di Cagliari, Cagliari, Italy (2016).

98.S

“La Sardegna avanguardia nelle ricerche aerospaziali? Lavoro e occupazione, viaggi supersonici e spedizioni sulla Luna e su Marte”, Circolo Sankara, Cagliari, Italy (2017).

99.S

“Dialogo su eccellenza e impatto scientifico”, Rivista “Il merito (<http://ilmerito.org/>), Italy (2017).

100.S

“Il contributo del Distretto Aerospaziale della Sardegna”, Prospettive di Innovazione e Sviluppo in Sardegna, Sardegna in Fiera, Cagliari, Italy (2017).

101.S

“Il contributo dell’Accademia e del Distretto Aerospaziale della Sardegna”, Impresa 4.0 Meridee Progetti dal Sud, Bari (Italy) 2017.

102.S

“L’aerospazio inteso come momento di aggregazione per PMI e PA”, Applicazioni RADAR/SAR per il monitoraggio del territorio: caso di studio Ventimiglia, Agenzia Spaziale Italiana, NeMeA Sistemi Srl, Ventimiglia (Italy) 2017.

103.S

“Il Distretto come sistema di cluster di imprese nel settore dell’aerospazio”, Presentazione Investimento Produttivo Avio SpA, Villaputzu (Italy) 2017.

104.S

“Il Dipartimento di Ingegneria Meccanica, Chimica e dei Materiali”, Prima conferenza della ricerca del Dipartimento di Ingegneria Civile, Ambientale e Architettura (DICAAR), Cagliari (Italy) 2017.

105.S

“Il contributo della Sardegna all’aerospazio”, SulciScienza 2017, Carbonia (Italy) 2017.

106.S

“Il Distretto AeroSpaziale della Sardegna: risultati e obiettivi futuri”, Sarcidano Festival Scienze, Isili (Italy) 2017.

107.S

“Aeronike Srl e Distretto AeroSpaziale della Sardegna Scarl acquistano le quote della SO.GE.A.OR SpA”, Press Conference at the Fenosu Airport, Oristano (Italy) 2017.

108.S

“I quattro mori esplorano lo spazio. L’esperienza isolana del DASS”, Rivista 48<sup>a</sup> Settimana Sociale, 2017

109.S

“Il DASS punta di diamante del rinascimento spaziale italiano”, intervista a Space Renaissance, <https://spacerenaissance.it/>, 2017

110.S

“Il Distretto Aerospaziale della Sardegna”, Le opportunità commerciali e di investimento industriale che la Tailandia offre nel settore dell’industria aerospaziale, Cagliari, Italy (2018).

111.S

“Sardinia UAV Test Range e progetti collegati”, Roma Drone Campus, Roma, Italy (2018).

112.S

“Reactive and non-reactive spark plasma sintering of ultra high temperature ceramics and related applications”, Spring school “Materials Science under Extreme Conditions (XTRMAT-2018) funded by European commission through the European project “SUPERMAT”, Bordeaux, France (2018).

113.S

“Il contributo del DASS allo sviluppo dell’aerospazio in Sardegna”, Rotary Club Cagliari / Nord, Cagliari, Italy (2018).

114.S

“Turismo e tecnologia sul territorio”, Rete mediterranea – fare impresa sul territorio, Cagliari, Italy (2018).

115.S

“The contribution of the Sardinian AeroSpace District to Mars to Earth paradigm”, Mars-to-Earth Conference, Milan, Italy (2018).

116.S

“Il contributo del DASS al nuovo rinascimento italiano”, Il Congress Space Renaissance, Bologna, Italy (2018).

117.S

“Il contributo del DASS all’esplorazione dello spazio”, 50<sup>th</sup> anniversary of the movie “2001: a space odyssey”, Cagliari, Italy (2018).

118.S

“Le prospettive dell’aerospazio: l’esperienza del distretto aerospaziale della Sardegna”, Seminar at the Enna– Kore University, Enna, Italy (2018).

119.S

“Ilmenite enrichment of lunar regolith to extract oxygen and for production of physical assets”, ESA Workshop: Towards the Use of Lunar Resources, Noordwijk, the Netherlands (2018).

120.S

“Aerospace contribution to precision agriculture”, Round Table, SINNOVA 2018, Cagliari, Italy (2018).

121.S

“Progetto Innovazione. Gli appalti innovativi nel settore dell'Aerospazio”, Seminario Sportello Appalti Imprese della Regione Sardegna, Cagliari, Italy (2018).