

## CURRICULUM VITAE (last update March 2019)

**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 Universita' di Cagliari, Italy        | Sept. 1992 - May. 1993 |
| Secretary of the Chemical Engineering Degree (Laurea) Council, Universita' 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 Universita' 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 – Dec. 2009                          |
| 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 Centre Metals in Medicine   | June 2001                |
| Member of the National Committee for Associate Professor promotion   | June 2001 – October 2001 |
| MURST COFIN 2001 Referee   | September 2001           |
| President of the Admission Committee for PhD in Environmental Science and Engineering  | October 2001             |
| Co-Chairman at the International Workshop on “Mechanochemical Processes for the Environment”   | February 2002            |
| Member of the International Advisory Committee of VII International Symposium on SHS   | May 2002                 |
| Member of the Scientific Committee of The International Conference ICheaP-6  | June 2002                |
| Member of the Research Board of Advisors of the American Biographical Institute  | July 2002                |
| Member of the Scientific Board of the Summer School on Contaminated Sites  | Sept. 2002               |
| Member of the Board of Experts for Italian Law Decree 297/1999   | August 2002 - present    |
| Member of the Editor’s Office of the Book Conception of SHS development  | August 2002              |
| Co-Chairman at VII International Conference on Environmental Issues and Waste Management in Energy and Mineral Production, SWEMP ’02 | Sept. 2002               |
| Chairman at the Japan-Italy Joint Symposium on Nanostructured Materials for Structural Applications and Nanodevices                  | Nov. 2002                |
| Member of the Council of Founders of 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 – March 2009   |
| 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

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|--|---|
| 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

|   |                         |
|---|-------------------------|
| 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   | Jan. 2012 – Oct. 2018   |
| 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 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

|   |                          |
|---|--------------------------|
| 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. 2014 – 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 – Nov. 2018  |
| 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 |
| Editorial Advisory Board Member of Science and Engineering of Composite Materials  | Dec. 2018 – present    |
| Member of the International Advisory Board of the Focused Session "SHS Ceramics" at the 15th International Ceramics Congress CIMTEC 2020 | Feb. 2019 - present    |
| Member of the review board of Journal of solar energy research updates   | March. 2019 - present  |

## 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     |
| Nomination for 2019 Lifetime Achievement Award  | Nov. 2018     |
| Acceptance “Who’s Who in the World” 2019  | Dec. 2018     |
| Nomination for 2019 Maquis Top Professional   | Jan. 2019     |
| Best paper of issue 15 of Biosciences Biotechnology Research Asia   | Feb. 2019     |

## 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 kEuro)<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 (P) |
| 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 Rischi, 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 (203 kEuro)<br>(Synthesis of composite micro- and nano-materials)                               | 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 (95 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 (15 kEuro)<br>(Performance evaluation of five municipal drinking water plants)  | 2017 – 2018 (C)    |
| Sardegna Ricerche – Cluster Top Down, Italy (374 kEuro)<br>(Sardinian microalgae cultivation for advanced Applications - COMISAR)   | 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 - Ithermal) | 2018 – present (C) |
| Sardania Region, Italy (1600 kEuro)<br>Sardinia UAV test range  | 2018 – present (C) |
| MIUR – National Specialization Strategy, Italy (4000 kEuro)   | 2019 – present (C) |



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

(Research and Testing of Materials, Diagnostic Systems and Environmental Controls for Evolutionary Space Transport Vehicles - Generation E)

Lg 7 - Regional Government, Italy (110 kEuro)  
(A new family of ReinforCed ultra HIgh-temperature METal DiboridES for advanced applications - ARCHIMEDES)

2019 - present (P)

## 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 or Co-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 or Co-directed**

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 or Co-directed**

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

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

### **b. In progress**

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 Ruvioli        | 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 – Dec. 2018    |

## LIST OF PUBLICATIONS: SYNOPSIS (last update March 2019)

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)       | 3923 / 5364 |
| h-index (Scopus / Google Scholar)               | 34 / 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).
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- 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).
- 295.C C. Drouet, D. Grossin, G. Bertrand, E. Champion, C. Ortali, M. Luginina, A. Paterlini, G. Chevallier, I. Julien, R. Orrù, **G. Cao**, S. Dosta, I. Garcia, F. Brouillet and C. Rey, “Low temperature calcium phosphate processing: a new path to face biomedical challenges”, 30th Symposium and Annual Meeting of the International Society for Ceramics in Medicine, Nagoya, (Japan) October 26-29 (2018).
- 296.C V. Malavasi, S. Soru, A. Concas, S. Montinaro, M. Afzal, M. Pisu and **G. Cao**, “Preliminary study of the effect of iron on the growth and morphology of extremophile green alga *Coccomyxa melkonianii* SCCA 048”, Società Botanica Italiana onlus, Riunione scientifica annuale (a cura di G. Alongi), Catania (Italy), November 16-17 (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 Thailandia 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

“The contribution of the Sardinian AeroSpace District to the new Italian Renaissance”, II Congress Space Renaissance, Bologna, Italy (2018).

117.S

“The contribution of the Sardinian AeroSpace District to space exploration”, 50<sup>th</sup> anniversary of the movie “2001: a space odyssey”, Cagliari, Italy (2018).

118.S

“Aerospace perspectives: the Sardinian AeroSpace District experience”, 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

“Innovation project. Innovative tenders in aerospace”, Seminario Sportello Appalti Imprese della Regione Sardegna, Cagliari, Italy (2018).

122.S

“The Sardinian AeroSpace District activities from October 2013”, I primi cinque anni del DASS - Una (breve) storia di futuro, Cagliari, Italy (2018).

123.S

“BAT project presentation”, with the participation of Ministry of Defense E. Trenta as representative of the Italian government and the Prime Minister of Malta Republic J. Muscat, Cagliari, Italy (2019).

124.S

“The DASS project”, PISQ (Perdasdefogu), Italy (2019).

125.S

“Innovation project. Innovative tenders in aerospace”, Seminario Sportello Appalti Imprese della Regione Sardegna, Oristano, Italy (2019).

126.S

“L’ingegnere chimico nell’industria 4.0”, Giornate dell’orientamento dell’Università di Cagliari, Cagliari, Italy (2019).