

## CURRICULUM VITAE (last update December 2016)

### Giacomo Cao

Professor of Chemical  
Engineering: March 2001 - present

Address: Department of Mechanical, Chemical and Materials Engineering  
University of Cagliari, 09123 Cagliari, Italy  
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#### **A. Personal Information:**

Date of Birth: September 22, 1960  
Place of Birth: Cagliari, Italy  
Nationality: Italian  
Address: Via Leone 8, 09129 Cagliari (Italy)  
Family Status: Married with one child  
Languages: Italian, English

#### **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 Technology  
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 of Chemical Processes	1990-1991
Principles of Chemical Engineering	1991-1992
Principles of Environmental Chemical Engineering	1992-2001
Applied Chemical Kinetics	1994-2000
Applied Chemical Kinetics and Transport Phenomena for University Second Degree	2001-2002
Applied Chemical Kinetics for University First Degree	1999-2000
Industrial Chemistry	1996-1997 1998-1999
Metallurgy	1997-1999
Principles of Environmental Chemical 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 and B) for University First Degree in Biomedical Engineering	2006 - present
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, Journal Mat. Science, Chem. Eng. Sci., Arch. Env.  
Prot. All. Comp., J. Mat. Synth.. Process., Waste Management,  
J. Mat. Res., Chemosphere, Env. Chem. Lett., Mat. Chem. Phys.,  
Int. J. Chem. React. Eng., Env. Sci. Tech., Materials Chemistry  
and Physics, Mat. Sci. Eng., Macr. Mat. Eng., Macromolecules,  
J. Hazardous Materials, J. Chem. Eng. Data, J. Bio. Mat. Bioen.,  
Scripta Materialia, J. Am. Ceram. Soc., J. Mat. Proc. Tech, Tissue  
Eng., Chem. Eng. Proc., Env. Tech., British J. App. Sci. Tech.,  
Mat. Lett., Comp. Sci. Tech, J. Env. Qual., J. Zejiang Univ., Algal  
R., Cer. Int., Prog. En. Comb. Sci., Mat. Char., Eur. Phys. J.,  
Adv. Eng. Mat., Pow. Met., Bioresource Tech., J. Asian Cer. Soc.,  
Indian J. Eng. Mat. Sc., Life Sciences, Materials Rec. Pat. Eng.,  
Afr. J. Microb. Res., J. Astronautical Sciences, Korean J. Chem  
Eng., Brazilian J. Chem. Eng., Energies, J. Chem Eng. Croatia

## Professional Experiences – continued

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

## Professional Experiences – continued

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

## Professional Experiences – continued

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



## Professional Experiences – continued

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 – present
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
Board of Directors of Consorzio La Chimica per l'Ambiente (INCA)	Jan. 2001 – March 2009
Associate Professor 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

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

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

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

## Professional Experiences – continued

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

## Professional Experiences – continued

Georgia National Science Foundation reviewer	October 2009
Member of the national committee for full professor promotion (INGIND24)	Jan. 2010–Sept. 2010
Member of the Editorial Advisory Board of the Open Atmospheric Science Journal	March 2010 – present
Member of the International Committee of ICheaP-11	May 2010
Referee of Research Projects for Padua University, Italy	June 2010
Member of the UNICA committee for Assegnista di Ricerca	June 2010
Evaluator of RIDITT projects for Italian Ministry of Economic Development	July 2010
Evaluator of REACH projects for Italian Ministry of Economic Development	July 2010
Expert invited by Samarco (Brasil)	August 2010
Member of the International Advisory Board of SHS 2011	Sept. 2010
Member of the University of Cagliari Board of Directors	Oct. 2010–June 2012
Coordinator of the PhD program in Biomedical Engineering	Oct. 2010- Mar. 2016
Project evaluator for Canada Foundation for Innovation	Jan 2011
Bioengineering Program Leader at Center for Advanced Studies in Sardinia (CRS4), Italy	Nov. 2010 – Feb.2013 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
Board of Directors of Consorzio La Chimica per l’Ambiente (INCA)	July 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	January 2012 – present
Reviewer of the International Scientific Committee of BOSICON	February 2012
Reviewer for the Romanian National Research Council	May 2012
Member of the IChEaP-11 International Scientific Committee	June 2012
Coordinator of the PhD program in Innovation Science and Technologies	June 2012 – August 2015
Member of the National Committee for Assistant Professor promotion at the University of Rome	July 2012
Member of the Int. Advisory Board of SHS2013	August 2012
Reviewer for Progetto Bandiera "La Fabbrica del Futuro"	October 2012
Member of the Editorial Board of Advances in Environmental Research (AER) – An Int. Journal	Nov. 2012 – Dec. 2013
Member of the organizing Committee of CMSE2013	November 2012
Advisory Board Member of the 5 <sup>th</sup> Annual Congress of Regenerative Medicine & Stem Cell-2012	December 2012
Vice-Coordinator of the Regional Committee to promote the Sardinian Aerospace District	Dec. 2012 – Sept. 2013
Member of the Int. Advisory Board of the Special Session "SHS Ceramics" at CIMTEC 2014	January 2013
Organizing Committee Member of the Int. Conference Tissue Science-2013	Mach 2013 – Dec. 2013
Member of the Review and Technical Program Committee for CMSE 2013 (II Global Conference on Mat. Sci. Eng.)	May 2013



## Professional Experiences – continued

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

## Professional Experiences – continued

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

## Professional Experiences – continued

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

## **Professional Experiences – continued**

Conference NPP-2016	Feb. 2016 – Nov. 2016
Responsible of ISRU/ISFR activities foreseen in the ERAS project proposed by the Italian Mars Society	Feb. 2016 - present
Reviewer for the Romanian National Plan for Research, Development and Innovation for the period 2015-2020	Apr. 2016 - present
Organizing Committee Member of the 8 <sup>th</sup> International Conference on Tissue Science and Regenerative Medicine-2017	Nov. 2016 – present
Reviewer for ICheaP13 International Scientific Committee	Dec. 2016 - 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 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 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 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 ( <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 – 2007	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
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 “SulcisAlghe” 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

## Research projects: participation and/or coordination

(P = participant, C = coordinator)

C.N.R. Finalizzato, Italy (45 kEuro) (Liquid-phase catalytic reactors)	1988 - 1991 (P)
MURST 60%, Italy	1989 (P)
MURST 40%, Italy	1989 (P)
NURACHEM (ENICHEM), Italy (15 kEuro) (Oligomerization of propene)	1989 - 1991 (P)
MURST 40%, Italy	1990 (P)
MURST 60%, Italy	1990 (P)
Regione Sardegna, Ass. alla Programmazione, Italy (50 KEuro) (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) (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) (Exploitation of Sardinian natural zeolites)	1996 - 1997 (C)
C.N.R. Strategico, Italy (40 kEuro) (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) (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) (HF and BF <sub>3</sub> monitoring in xylenes production plants)	1998 - 1999 (P)
Inca International - DOW CHEMICAL, USA (30 kEuro) (Kinetics of terephthalic acid production)	1998 - 1999 (C)
Agenzia Spaziale Italiana, Italy (600 k Euro) (SHS, gravity and space applications)	1998 - 2003 (C)
C.N.R. Tempe, Italy (CNR Scientific Advisor)	1998 - 2003 (C)
MURST 60%, Italy (10 kEuro)	1998 (C)
European Space Agency, European Community (34 kEuro) (Coordination of a European Topical Team)	1998 - 2005 (C)
INTAS, European Community (60 kEuro) (Synthesis of advanced composites)	1998 - 2000 (C)
Regione Sardegna, Assessorato Ambiente, Italy (70 kEuro) (Advanced technologies for industrial waste minimization)	1998 - 1999 (C)
BRITE - DESCO, European Community (35 kEuro) (Synthesis of advanced powders for plasma spraying)	1998 - 2000 (C)
Consorzio 21, Italy (80 kEuro) (Field assisted combustion synthesis of advanced materials)	1999 - 2001 (C)
Consorzio 21, Italy (70 kEuro) (Sardinian natural adsorbents for environmental applications)	1999 - 2001 (C)
C.N.R. Tempe – CNR IENI, Italy (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) (Adsorption and soil remediation)	1999 – 2003 (P)
CINECA-INSTM, Italy (Modeling of the Field Assisted Combustion Synthesis Technique)	2000 – 2001 (P)
Università di Cagliari, Italy (2500 Euro) (Young Researchers: Roberto Orru')	2000 – 2002 (P)
Università di Cagliari, Italy (2500 Euro) (Young Researchers: Alberto Cincotti)	2000 – 2002 (P)
Progemisa SpA, Italy (26 kEuro) (Sardinian Natural Zeolites for Environmental Applications)	2000 – 2001 (C)
Università di Cagliari, Italy (5000 Euro) (Young Researchers: Mariella Sannia)	2000 – 2002 (C)
MURST National Projects, Italy (87 k Euro) (Reactions and Reactor Engineering of Combustion Synthesis Processes)	2001 – 2002 (P)
C.N.R. Gruppo Rischi, Italy (80 kEuro) (Industrial wastes recycling and inertization through self-propagating reactions)	2001 - 2004 (C)
Consorzio Promea, Italy (35 kEuro) (Applications of Self-propagating Reactions for the Synthesis of Advanced Materials)	2001 – 2003 (P)
ACNA Cengio SISIFO project, Italy (96 kEuro) (Advanced soil remediation techniques)	2001 – 2004 (P)
Inca International - DOW CHEMICAL, USA (20 kEuro) (Kinetics of terephthalic acid production)	2001 - 2004 (C)
Provincia di Cagliari, Italy (103 kEuro) (Environmental Rehabilitation of Irvi and Piscinas Rivers)	2001 – 2003 (C)
Inca International - DOW CHEMICAL, USA (20 kEuro) (New solvents for alkyl-aromatics oxidation)	2002 - 2004 (C)
MIUR PON Project, Italy (2300 kEuro) (Advanced soil remediation techniques)	2002 – 2007 (C)
MIUR PON Equipment Project, Italy (300 kEuro) (Mobile laboratory for environmental investigations)	2002 – 2005 (C)

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

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

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

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

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

Eurostar, European Community (264 kEuro) (Novel SPS technology FAST <sup>2</sup> – SEPROFAST)	2011 – 2014 (P)
Sardinian Regional Government (160 kEuro) (Development of HAp composites)	2012 – 2015 (P)
Banco di Sardegna Foundation, Italy (10 kEuro) (New model for acute toxicity tests with hMSCs)	2013 - 2016 (C)
MIUR – FIRB (182 kEuro) (Innovative materials for solar thermodynamic technology)	2013 – present (P)
Sardinian Regional Government (299 kEuro) (Use of hMSC for toxicity tests of nanopowders)	2013 – 2016 (C)
INNOVARE project BIOPILOT (217 kEuro) (CO <sub>2</sub> sequestration and bio-oil production through microalgae)	2014 – 2015 (C)
Fondazione di Sardegna - Regional Government (123 kEuro) (Fabrication, characterization and modelling of NANoporous METal FOAMS - NAMEFOAMS)	2017- 2019 (C)

## Seminar, Symposium and Conference Organization

Workshop on Advanced Chemical Technology	June 1995
Seminar by Prof. A. M. Merzhanov, Russian Academy of Sciences	April 1996
First Italian Workshop on Combustion Synthesis of Materials	July 1997
Seminar by Prof. Zuhair A. Munir, University of California, Davis, USA	Sep. 1997
V Seminar on Catalysis	June 1998
Seminar by Prof. Arvind Varma, University of Notre Dame, Notre Dame, USA	July 1998
Working Party of the European Federation of Chemical Engineering on Distillation, Absorption and Extraction	Oct. 1998
Seminar by Prof. Vladimir Hlavacek, University of SUNY/BUFFALO, Buffalo	June 1999
Seminar by Prof. Pietro Tundo, University of Venezia	Jan. 2000
Workshop AIDIC SARDEGNA “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

## **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

### b. In progress

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

## Ph.D. Dissertations Directed

### a. Completed

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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

### **b. In progress**

28) Luca Desogus (2014-present)

Biological characterization of bio-glasses

29) Amit Kumar (2015-present)

Computational Modeling of protein-protein complexes

30) Santina Soru (2016-present)

Cultivation of microalgae for CO<sub>2</sub> sequestration and bio-oil production

31) Barbara Lasio (2016-present)

Synthesis and characterization of innovative materials

32) Marina Luginina (2016-present)

Biomaterials

33) Francesco Torre (2016-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 – December 2008
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

## LIST OF PUBLICATIONS: SYNOPSIS (last update December 2016)

Giacomo Cao

Refereed Papers in Scientific Journals (PRJ)	183
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	366
Total citations (Scopus / Google Scholar)	2857 / 3815
h-index (Scopus / Google Scholar)	29 / 35

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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).
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- 243.C M. Scanu, L. Mancuso and **G. Cao**, "Human mesenchymal stem cells for acute toxicity tests", *15th International Symposium on Toxicity Assessment (ISTA15)*, Hong Kong, China, July (2011).
- 244.C G. Corrias, R. Licheri, R. Orrù and **G. Cao**, "Self-Propagating High-Temperature Synthesis Reactions for ISRU and ISFR Applications", *International SHS 2011*, Anavyssos, Greece, September (2011).
- 245.C M. Scanu, L. Mancuso, G. Cao "Evaluation of the use of human mesenchymal stem cells for acute toxicity tests" *47<sup>th</sup> Congress of the European Society of Toxicology (EUROTOX 2011)*, Paris, France, August (2011).
- 246.C S. Montinaro, A. Concas, M. Pisu and **G. Cao**, "Remediation by ball milling of heavy metals contaminated soils", *Convegno "La Chimica in Sardegna nell'Anno della Chimica"*, Alghero, Italy, October (2011).
- 247.C G.A. Lutz, A. M. Locci, G. Corrias and **G. Cao**, "Effect of medium composition on the growth of *Nannochloris eucaryotum* in batch photobioreactors", *Convegno "La Chimica in Sardegna nell'Anno della Chimica"*, Alghero, Italy, October (2011).

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

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

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

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

- Polyurethane Vascular Graft for Tissue-engineering Applications”, 26<sup>th</sup> European Conference on Biomaterials, Liverpool, UK, September 31<sup>st</sup> August-3<sup>rd</sup> (2014).
- 279.C C. Costelli, V. Malavasi, M. Orsini, R. Cusano, A. Concas, A. Angius and **G. Cao**, “Complete genome sequence of chloroplast and mitochondrial DNA of *Chlorella sorokiniana*”, Annual Meeting of the Italian Phycological Group, Padua, Italy, November 14-15<sup>th</sup> (2014).
- 280.C **G. Cao** and D. Pani, “La tecnologia della terra cruda in ambito extraterrestre per la realizzazione di elementi strutturali su Luna e Marte”, Convegno Internazionale VII Edizione Culture Festival IDEA Terrae 2014, Serramanna (CA), Italy, December 3-6<sup>th</sup> (2014).
- 281.C G. Corrias, R. Licheri, R. Orrù and **G. Cao** “Innovative technologies for Lunar physical assets production using In-Situ materials”, Moon 2020 -2030 - A New Era of Coordinated Human and Robotic Exploration, ESTEC, The Netherlands, December 15-16<sup>th</sup> (2015).
282. C A. Kumar, F. Delogu and **G. Cao**, "Dynamical aspects of cross-reactivity in a autoimmune TCR", Summer School on Modelling of Biological Systems, Sardegna Ricerche, Pula (CA), June 6-10<sup>th</sup> (2016).
- 283.C **G. Cao**, 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**, “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).

## **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

“NANOSTRUCTURED 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 seminari 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’plorazione 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 Nanobioteconologie” 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).

85.S

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

86.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).

87.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).

88.S

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

89.S

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

90.S

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

91.S

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

92.S

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

93.S

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

94.S

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

95.S

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

96.S

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