

## CURRICULUM VITAE (last update January 2013)

### Giacomo Cao

Professor: 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 Nano Society  
American Society of Combustion Synthesis  
The Combustion Institute  
Italian Association of Chemical Engineering  
University Group of Chemical Engineering Researchers

## Membership of Professional Societies - continued

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  
ISRU and ISFR processes

### **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 First Degree in Environmental Engineering	1994-present
Transport Phenomena for University Second	

### **Teaching Experiences - continued**

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

#### **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. Alexander G. Merzhanov  
Institute of Structural Macrokinetics  
Russian Academy of Sciences  
Chernogolovka, Moscow Region  
142432 Russia

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.,  
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., 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.,  
Mat. Lett., Comp. Sci. Tech, J. Env. Qual., J. Zejiang Univ.,  
Cer. Int., Prog. En. Comb. Sci., Mat. Chem. Phys., Mat. Char.,  
Adv. Eng. Mat., Pow. Met., Bioresource Tech. Reviewer Sept 1992 - present
- Member of the Commission for  
the establishment of the Environmental

## Professional Experiences – continued

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 - present
Chairman, Interdepartmental Centre of Environmental Science and Engineering (CINSA)	Jun. 1996 – Oct. 2004 Oct. 2010 - present

## Professional Experiences – continued

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"	Apr. 1996 – 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
Member of the Founding Committee of	

## Professional Experiences – continued

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 Committee 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
Founding Member of the Interdepartmental	

## Professional Experiences – continued

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
Reviewer for MIUR/COFIN/2003 projects	Apr. 2003

## Professional Experiences – continued

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. Symposium 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 Professor Evaluation	November 2005 – May 2006

## Professional Experiences – continued

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	February 2007-present
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	September 2007
MIUR project Reviewer	November 2007 - present
Provincia di Cagliari (Italy) Consultant	

## Professional Experiences – continued

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-present
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
Georgia National Science Foundation reviewer	October 2009

## Professional Experiences – continued

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 – present
Project evaluator for Canada Foundation for Innovation	Jan 2011
Bioengineering Program Leader at Center for Advanced Studies in Sardinia (CRS4), Italy	Nov. 2010 – present
Member of the PhD defense committee in chemical eng., 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 – present
Padua University (Italy) project reviewer	September 2011
Member of the Scientific Committee of “La Chimica in Sardegna nell’anno della Chimica”	Sept. 2011- Oct. 2011

## Professional Experiences – continued

Member of the Editorial Board of ISRN Chemical Engineering	Nov. 2011 – present
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 IChEaP11 International Scientific Committee	June 2012
Member of the National Committee for Assistant Professor promotion at the University of Rome	July 2012
Member of the International Advisory Board of SHS2013	August 2013
Reviewer of Progetto Bandiera “La Fabbrica del Futuro”	October 2012
Member of the Editorial Board of Advances in Environmental Research (AER)	November 2012 – present
Member of the organizing Committee of ICMSE2013	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	December 2012



## 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 (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

## 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 spray)	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 – present (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 Rischì, 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-present (C)
MIUR Lg 297 (680 kEuro) (Dense Nanostructured Materials)	2010-present (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-present (C)
PIA Regione Sardegna, Italy (500 kEuro) (Tissue engineering and regenerative medicine)	2010-present (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-present (C)
ESA/BIC Lazio, European Community and Italy (50 kEuro) (UHTC for non-space applications)	2011 - present (C)



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

Eurostar, European Community (264 kEuro)  
(Novel SPS technology FAST<sup>2</sup> – SEPROFAST)

2011 – 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 "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

### a. Completed

- 1) Massimo Pisu (1990 - M. Morbidelli co-advisor):  
Design of Advanced Controllers for a CSTR operating at Unstable Stationary Steady States.
- 2) Roberto Orru' (1991 - M. Morbidelli co-advisor):  
Experimental Analysis and Modeling of Amino Acids Uptake by Cation Exchange Resins.
- 3) Guido Grosso (1992 - M. Morbidelli co-advisor):  
Adsorption of Amino Acids by Cation Exchange Resins.
- 4) Stefano Melis (1992 - M. Morbidelli co-advisor):  
Residence Time Distribution for a Cation Exchange Packed Bed.
- 5) Lucia Caddeo (1993 - 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 - M. Pisu co-advisors):  
Liquid Phase Oxidation of p-Xylene to Terephtalic Acid.
- 7) Franco Laconi (1994 - S. Melis co-advisors):  
Experimental Analysis and Modeling of Amino Acid Sorption by Cation Exchange Resin.
- 8) Salvatore Franzone (1994 - G. Barrocu and L. Muscas co-advisors):  
Transport and Adsorption of Heavy Metals in Porous Media.
- 9) Alberto Cincotti and Roberto Garau (1994 - M. Pisu co-advisor):  
Experimental Analysis and Modeling of Liquid Phase Oxidation of p-Xylene to Terephtalic Acid.
- 10) Pietro Berretta (1995):  
Simulation of the Extraction Section of the Mitsubishi Xylene Separation Process
- 11) Davide Carta (1996 - P. Viridis, R. Orru' and B. Simoncini co-advisor):  
Self-Propagating High-Temperature Synthesis of Advanced Materials.
- 12) Maria Vittoria Simeone (1996 - R. Orru' and B. Simoncini co-advisors):  
Self-Propagating Reactions for Industrial Wastes Recycling.
- 13) Deborah Manca (1996 - R. Orru' co-advisor):  
Adsorption Equilibria on Sardinian Natural Zeolites.

## Dissertations Directed - continued

- 14) Carlo Broi (1996 - A. Cincotti co-advisor):  
On the Liquid Phase Oxidation of p-Xylene to Terephthalic Acid.
- 15) Marcello Murru (1996 - B. Marongiu and A. Cincotti co-advisors):  
Liquid-Liquid Equilibria involving Hydrocarbons and Formil-Morpholine
- 16) Bruno Cau (1998 - 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 - R. Orru', M. Sannia, A. Muntoni and M. Monagneddu co-advisors):  
Self-propagating reactions for the treatment of hydrometallurgical wastes
- 18) Andrea Floris (1998 - J. MacInnes co-advisor):  
Temperature measurements in laminar flames and modeling studies
- 19) Cesare Dellacà (1998 – R. Orrù, P. Serra and R. Lonis co-advisors) Utilization of Sardinian Natural Zeolites for Environmental Applications.
- 20) Nicola Lai (1998 - A. Cincotti co-advisor):  
Simulation of the Ammono-oxidation Reactor
- 21) Gianluca Secci (1998 - P. Papet co-advisor):  
Chemical microsensors for heavy metal detection in solution
- 22) Alessandro Concas (1999 – R. Orru' and M. Sannia co-advisors):  
Environmental applications of Self-propagating reactions
- 23) Maurizio Ligas (2000):  
Effect of catalyst concentration and solvent medium on liquid-phase oxidation of p-xylene oxidation
- 24) Antonio Mario Locci (2000):  
Field-assisted combustion synthesis: experimental and modeling
- 25) Stefano Perra (2000):  
Adsorption processes involving natural materials
- 26) Anna Rita Mameli (2000):  
Adsorption Equilibria on Sardinian Natural Zeolites.
- 27) Carlo Patteri (2001):

## Dissertations Directed - continued

Advanced soil remediation techniques

28) Aristeo Marras (June 2001)

Advanced soil remediation techniques

29) Claudia Pizzalis (June 2001)

Adsorption processes involving Sardinian Natural Zeolites

30) Francesca Sini (December 2001)

Characterization and Exploitation of Sardinian Natural Zeolites

31) Andrea Atzori (Apr. 2002):

Optimization of waelz furnace through simulation tools

32) Elisabetta Manis (July 2002):

Natural zeolites characterization for environmental applications

33) Valeria Piras (July 2002)

Combustion synthesis of advanced materials

34) Omar Lardieri (Dec. 2002)

Natural zeolites characterization for environmental applications

35) Claudio Cannas (Feb. 2003)

Natural zeolites characterization for environmental applications

36) Caterina Frau (Apr. 2003)

Gas-liquid Reactions and Reactors

37) Simone Saiu (May 2003)

Self-propagating reactions for environmental protection

38) Stefano Salis (June 2003)

Mechanochemical degradation of chloro-organic compounds

39) Sara Todde (July 2004)

Synthesis of advanced materials by SPS

40) Gloria Arangino (July 2004)

Synthesis of advanced materials by SPS

41) Gianni Tilocca (Sept. 2004)

Synthesis of advanced materials by SPS

42) Sarah Fadda (April 2005)

Synthesis of advanced materials by SHS/BM/SPS



## **Dissertations Directed – continued**

43) Fabiana Carta (April 2006)  
Synthesis of advanced materials by SHS/BM/SPS

44) Sarah Todde (December 2007)  
Synthesis of advanced materials by SHS

45) Gianluca Corrias (April 2008)  
Inertization of heavy metals contaminated soils

b. In progress

## Ph.D. Dissertations Directed

### a. Completed

- 1) Massimo Pisu (1991/1994 - M. Morbidelli co-advisor):  
Gas-Liquid Reactors: the case of p-Xylene Liquid Phase Oxidation.  
Current position: Senior Researcher at CRS4, Italy.
- 2) Laura Muscas (1991/1994 - G. Barrocu co-advisor):  
On the Adsorption and Transport of Lead in Porous Media: Modeling and Experiments.  
Current position: Senior Researcher at CRS4, Italy.
- 3) Andrea Viridis (1992/1996 - A. Viola co-advisor):  
Use of Ozone in drinking and wastewater treatments plants.
- 4) Stefano Melis (1993/1996 - M. Morbidelli co-advisor):  
Adsorption Equilibria and Separation Processes by Cation Exchange Resins.  
Current position: 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: Associate Professor 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: Assistant Professor 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: Researcher at CRS4, Italy
- 11) Alessandro Concas (2000/2003):  
Advanced technologies for industrial waste minimization and recycling  
Current position: Researcher at CRS4, Italy.
- 12) Roberta Licheri (2001/2003):  
Self-Propagating High-Temperature Synthesis: applications  
Current position: Assistant Professor at the University of Cagliari, Italy.

## Ph.D. Dissertations Directed – continued

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

14) Anna Mameli (2001/2003):  
Exploitation of Sardinian Zeolites for Environmental Applications

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

16) Sarah Fadda (2005/2009)  
Population balance applications

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

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

19) Antonio Lutz (2007/present)  
Carbon dioxide sequestration

20) Gianluca Corrias (2008/present)  
Development of ISRU and ISFR processes

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

### b. In progress

22) Alberto Steriti (2010/present)  
Production of PUFAs from microalgae

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

24) Carla Coluccia (2010-present)  
Stem cells in gene therapy

25) Bruno Frongia (2010-present)  
Stem cells in gene therapy

26) Alessio Cuccu (2011.present)  
Bioglass

## Research Associates Supervised

Ing. Roberto Orru'	Apr. 1996 – Mar. 1998
Dr. Guido Peronetti	Jan. 1998 – Jan 2000
Ing. Paola Serra	Jan. 1998 – Jan. 1999
Dr. Davide Zedda	Jan. 1998 – Jan. 1999
Dr. Maura Muscas	Sept. 1998 – Jan. 1999
Esa Toukoniitty	July 1998 – Mar. 1999
Dr. Zhang Kai	Jan. 1999 – March 1999
Benjamin Hockey	Nov. 1998 – July 1999
Dr. Elena Medda	Sept. 1999 – Sept. 2002
Ing. Alessandro Concas	Nov. 1999 – Feb. 2000
Dr. Rita Saiu	Nov. 1999 – March 2000
Dr. Daniela Carta	March 2000 – September 2002
Dr. Emanuela Fenu	March 2000 – June 2000
Dr. Roberta Licheri	March 2000 – Dec. 2000
Dr. Mariella Sannia (Post-Doc)	July 2000 – January 2002
Ing. Cincotti Alberto (Assegnista)	August 2000 – December 2002
Dr. Andrea Uda (Assegnista)	January 2001 – February 2002
Dr. Maria Emma Raffatellu	August 2002 – December 2002
Dr. Mauro Porcu	September 2002 – November 2002
Dr. Silvia Caschili	March 2003 – June 2004
Dr. Gian Franco Marras	March 2004 – December 2004
Dr. Roberta Licheri	Jan 2004 – present
Ing. Antonio Locci	Jan 2004 – March 2006
Ing. Sarah Fadda	June 2005- December 2005

## **Research Associates Supervised - continued**

Dr. Luisa Mancuso	February 2007 – present
Dr. Gianluca Corrias	May 2008 – December 2008
Dr Gianluigi Caddeo	July 2008 – March 2009
Dr. Ivana Ruvoli	August 2008 – March 2009
Dr Ilaria Liuzzo	March 2007 – December 2009

## LIST OF PUBLICATIONS: SYNOPSIS (last update January 2013)

Giacomo Cao

<b>Papers in Refereed Journals (PRJ)</b>	<b>151</b>
<b>Patents (P)</b>	<b>12</b>
<b>Books (B)</b>	<b>3</b>
<b>Edited Books (EB)</b>	<b>1</b>
<b>Refereed Conference Proceedings (RCP)</b>	<b>16</b>
<b>Book chapters (BC)</b>	<b>17</b>
<b>Conference Proceedings (CP)</b>	<b>123</b>
<b>Grand total</b>	<b>323</b>

### 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. (PRJ) **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 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



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- 219.C(CP) D. Marzorati, E. Merlone Borla, M. Lattore, G. Carturan, E. Callone, G. Neri, G. Micali, A. Bonavita, E. Roncari, A. Sanson, C. Di Natale, E. Martinelli, G. Pennazza, R. Paolesse, P. Siciliano, A. Forleo, S. Capone, A.M. Taurino, B. Debenedetti, F. Deorsola, S. Iannotta, T. Toccoli, N. Coppedè, R. Licheni, R.Orrù and **G. Cao**, "Firb "square" project: Nano-structured sensors for the detection of the polluting IC engine exhaust gases and for indoor air quality monitoring", *Proceedings AISEM Congress 2008, Rome, Italy* (2008).
- 220.C R. Licheri, R. Orrù, C. Musa, A.M. Locci, and **G. Cao**, "Spark Plasma Sintering of ZrB<sub>2</sub>- and HfB<sub>2</sub>-based UHTCs prepared by Self-propagating High-temperature Synthesis", *First Workshop on Science and Technology of UHTC-based Hot Structures CIRA, Capua, Italy* (2008).
- 221.C A. Cincotti, A.M. Locci, R. Licheni, R. Orrù, and **G. Cao**, "SPS kinetic studies and modeling of the apparatus", *International Workshop on SPS, Avignon, France* (2008).
- 222.C(CP) S. Todde, A. M. Locci, A. Cincotti, R. Orrù and **G. Cao**, "Modeling of heat and mass transfer during selfpropagating reactions in the Ti-Fe-C ternary system", *Convegno GRICU, Le Castelle, Italy* (2008).
- 223.C(CP) S. Fadda, A. Cincotti, A. Concas, M. Pisu and **G. Cao**, "Modelling breakage and reagglomeration phenomena during fine dry grinding in ball milling devices", *Convegno GRICU, Le Castelle, Italy* (2008).
- 224.C(CP) L. Mancuso, M. I. Liuzzo, M. Pisu, A. Cincotti, S. Fadda, A. Concas and **G. Cao**, "Experimental analysis and modelling of bone marrow mesenchymal cells proliferation", *Convegno GRICU, Le Castelle, Italy* (2008).
- 225.C(CP) S. Montinaro, A. Concas, M. Pisu and **G. Cao**, "Remediation by ball milling of heavy metals contaminated soils from mining areas", *Convegno GRICU, Le Castelle, Italy* (2008).
- 226.C(CP) R. Licheni, R. Orrù, C. Musa, A.M. Locci and **G. Cao**, "Fabrication of Ultra-High Temperature Ceramic Materials for Extreme Environment Applications", *Convegno GRICU, Le Castelle, Italy* (2008).
- 227.C R. Licheri, R. Orrù, A.M. Locci, A. Cincotti, and **G. Cao**, "Innovative Technologies for the Fabrication of Ultra-High Temperature Ceramic Materials for Extreme Environment Applications" *The 20<sup>th</sup> International*

*Symposium on Chemical Reaction Engineering (ISCRE 20)*, Kyoto, Japan, 7-10 September (2008).

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

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

- 248.C G. Corrias, R. Licheri, R. Orrù and **G. Cao**, “Fabrication of lunar and martian physical assets by SHS reactions”, *Nonisothermal Phenomena & Processes: from Thermal Explosion Theory to Structural Macrokineics* 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 G. Corrias, R. Licheri, R. Orrù, M. Pisu, A. Concas, A. Lorenzoni and **G. Cao**, “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, September (2012).

- 258.C 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).
259. C A. Concas, G. Corrias, A. Steriti and **G. Cao**, “Coltivazione di microalghe per la produzione di biopetrolio e prodotti ad alto valore aggiunto”, Congresso Annuale Consorzio INCA c/o Ecomondo, Rimini (BO), Italy, Novembre (2012).

## **INVITED SEMINARS, CONFERENCES & 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 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

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).

64.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).

65.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 and beyond, Roma, Italy (2012).