Vincenzo Balzani

CURRICULUM VITAE

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***Birth**:* November 15, 1936, at Forlimpopoli (Forlì), Italy

University Education: Laurea in Chimica, cum laude, University of Bologna (Italy), 1960.

***Present Position**:* Emeritus Professor of Chemistry, University of Bologna (Italy)

***Past Positions**:* Assistant Professor, University of Bologna, 1963-1968; Assistant Professor, University of Ferrara, 1968-1969; Associate Professor, University of Bologna, 1969-1973. Full Professor of Chemistry, 1973-2011

***Activities**:*

- **Visiting Professor:** University of British Columbia, Vancouver, Canada 1972; Energy Research Center, Hebrew University of Jerusalem, Israel, 1979; University of Strasbourg, France, 1990, University of Leuven, Belgium, 1991; University of Bordeaux, France, 1994.
- **Director :** Photochemistry and Radiation Chemistry Institute (FRAE) of the Italian National Research Council (CNR), Bologna (1977-1988); III Summer School of the European Photochemistry Association (1979); Center for the Photochemical Conversion of Solar Energy, University of Bologna (1981-1998); NATO ARW on "Photoinduced Charge Separation and Energy Migration in Supramolecular Systems", Capri, Italy (1987); II NATO Science Forum "Supramolecular Chemistry", Taormina, Italy (1991); School on Photochemistry, ICS, Trieste, Italy (1993); PhD course in Chemical Sciences, University of Bologna (2002-2007). Laurea specialistica (pre-doc course) on Photochemistry and Material Chemistry (2004-2007)

- **Chairman:** Baxendale Memorial Symposium (1983); Workshop on "Stati Eccitati, Intermedi Reattivi, e Metodologie di Studio" (1988); XII IUPAC Symposium on Photochemistry (1988); Gruppo Italiano di Fotochimica (1982-1986); European Photochemistry Association (1988-92); International Symposium on "Photochemistry and Photophysics of Coordination Compounds (since 1989, now Honorary Chairman).

- **Member of Editorial Boards:** Research on Chemical Intermediates (1983-1991); Gazzetta Chimica Italiana (1984-1989); Supramolecular Chemistry (1992- 2009); New Journal of Chemistry (1994-2000); Nanotechnology (1994-2001); Chemistry - An European Journal (1995-); Inorganica Chimica Acta (1995-2002); Inorganic Chemistry (1997-1998); Chemical Society Review (1997-1998); International Journal of Photoenergy (2000-2008); ChemPhysChem (2000-2011); RSC Dalton Transactions (2000-2007); Accounts of Chemical Research (2000-2003); Encyclopedia of Supramolecular Chemistry (2002-2003); Organic & Biomolecular Chemistry (2003-2007); Tetrahedron (2003-2007); Tetrahedron Letters, 2003-2007); Comptes Rendus Chimie (2004-2012); Topics in Current Chemistry (2005-2009); Small (2005-2010); ChemSusChem (2008-2015); Chemistry - A European Journal (Honorary Member).

- **Editor***:*

Supramolecular Photochemistry, Nato ASI Series n. 214, Reidel, Dordrecht, 1987;

Supramolecular Chemistry, Nato ASI Series n. 371, Reidel, Dordrecht, 1992 (with L. De Cola);

Guest Editor, *Supramolecular Photochemistry*, New J. Chem., n.7-8, vol. 20, 1996;

Editor in chief of the Handbook on *Electron Transfer in Chemistry*, in five volumes, Wiley-VCH, Weinheim, 2001;

Topics in Current Chemistry, volumes 280 and 281 on *Photochemistry and Photophysics of Coordination Compounds*, 2007.

- **Fellowships and Memberships:** American Association for the Advancement of Science; Royal Society of Chemistry; Accademia Nazionale delle Scienze detta dei XL; Accademia Nazionale dei Lincei; Institute of Advanced Study, University of Bologna (past resident fellow); Accademia delle Scienze di Torino; Società

Nazionale di Scienze, Lettere ed Arti in Napoli; Academia Europaea; Accademia delle Scienze di Bologna; European Academy of Sciences, European Photochemical Association; Società Chimica Italiana.

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Awards

Miriam Borsari Medal, University of Bologna, 1960; Pacific West Coast Inorganic Lectureship, USA and Canada, 1985; Gold Medal "S. Cannizzaro", Italian Chemical Society, 1988; Doctorate "Honoris Causa", Faculty of Science, University of Fribourg (CH), 1989; Franqui Chair, University of Leuven, Belgium, 1991; Accademia dei Lincei Award in Chemistry, Italy, 1992; Wenner Gren Distinguished Lectureship, Sweden, 1993; Ziegler-Natta Lecturer, Gesellschaft Deutscher Chemiker, Germany, 1994; Italgas European Prize for Research and Innovation, 1994; Centenary Lecturer, The Royal Chemical Society (U.K.), 1995-96; Lee Lecture, University of Chicago, USA, 1995-96; Blacet Lecture, University of California at Los Angeles, USA, 1998; Sacconi Lecture, University of Florence, Italy, 1999; Porter Medal for Photochemistry, 2000; Prix Franco-Italien de la Société Française de Chimie, 2002; Upper Rhine Lectureship, France and Germany, 2002; Premio al Merito, Camera di Commercio, Industria e Agricoltura della Provincia di Forlì-Cesena, 2003; Ungaretti Lecture, University of Pavia (Italy), 2005; Grande Ufficiale dell'Ordine al Merito della Repubblica Italiana, 2006; Werdelmann Lecture, University of Essen (Germany), 2006; Quilico Gold Metal, Organic Division, Italian Chemical Society, 2008; Premio Alta Qualità delle Città, Bologna, 2008; Premio Galileo per la letteratura scientifica, 2009; Honor Professor, East China University of Science and Technology of Shanghai, 2009; Blaise Pascal Medal , European Academy of Sciences, 2009. Premio Città di Sasso Marconi for Science Education, 2011. Premio internazionale Galileo Galilei dei Rotary Club Italiani, 2011. Nature Award for Mentoring in Science, 2013.

Research Interests

Photochemistry. Photophysics. Supramolecular chemistry. Electron transfer reactions. Molecular-level devices and machines. Molecular nanotechnology. Photochemical solar energy conversion.

Scientific activity

His scientific activity is documented by twelve books and more than 600 papers published on the most qualified journals. He has been invited to give lectures at a great number of national and international Conferences, and seminars at many Universities and Research Centers around the world.

Description of the scientific activity

1960-1982

Vincenzo Balzani since the early sixties investigated in a systematic way the photochemical and photophysical behavior of several families of classical coordination compounds (in particular, Co(III), Cr(III), and Pt(II) complexes). In **1970** he published (with V. Carassiti) the monograph ***Photochemistry of Coordination Compounds*** (Academic Press, London) which has been the most authoritative reference book in the field (see, e.g., *J.Am.Chem.Soc*., *93*, 3560 **1971**), as well as a source of inspiration for many young photochemists in the last 30 years In the early seventies he was one of the first scientists who discussed the problem of solar energy conversion by photosensitization of the water splitting reaction in a paper (*Science 189* 852 **1975**) that stimulated the work of several research groups. In the same period, he demonstrated the reducing properties of the luminescent excited state of $Ru(bpy)_3^{2+}$ (*Inorg.Chem. 13* 2976 **1974**), a complex that he has extensively used during the following years in photochemical, chemiluminescent and electro-chemiluminescent processes (review: *Topics Curr. Chem. 158* 31 **1990**). A brilliant spin-off of these systematic investigations was the discovery of an "artificial firefly" based on the oscillating Belousov-Zhabotinski reaction (*J.Am.Chem.Soc. 104* 4250 **1982**).

1982-1992

In the period 1980-1988, in collaboration with the group of A. von Zelewsky (Univ. of Fribourg, CH), he investigated the photochemical and luminescent behavior of more than one hundred Ru(II)-polypyridine complexes, showing that it is possible to tune their ground and excited state properties by a suitable choice of the ligands (*Coord. Chem. Rev. 84* 85-277 **1988**; this paper as so far received more than 2500 citations in the literature). This work has opened the way to an extensive use of polypyridine metal complexes in a variety of processes of fundamental and applicative interest. He also

investigated a great number of Pt(II), Pt(IV), Rh(III), and Pd(II) cyclometalated complexes (review: *Advances in Photochemistry 17* 1-68 **1992**); some of these complexes are currently used in several laboratories for obtaining light-emitting diodes.

He has then carried out extensive work in the field of bimolecular energy and electron transfer reactions involving excited states of coordination compounds, in part, in collaboration with the group of F. Scandola, Univ. of Ferrara, Italy (see, e.g., *Inorg. Chem. 25* 4457 **1986**). Since 1983 he has been engaged in studies concerning luminescent lanthanide ions and in a series papers in collaboration with J.-M. Lehn (Univ. of Strasbourg, France) he has carried out systematic investigations on luminescent Eu^{3+} and Tb^{3+} cryptates which may be considered the simplest examples of "antenna" devices (see, e.g., *Angew. Chem. Int. Ed. 30* 190 **1991**).

In 1984 he began to work on the possibility to control the photochemical and photophysical properties of coordination compounds by formation of supramolecular structures (*J.Am.Chem.Soc. 107* 6888 **1985**). His interest in the photochemical and photophysical properties of supramolecular species has then grown rapidly along three directions: (i) in collaboration with S. Campagna and G. Denti, he has investigated luminescent and redox-active oligonuclear complexes (including tri-, tetra-, hexa-, hepta-, deca-, trideca- and docosonuclear species, both homo- and hetero-metallic) in which, by a suitable choice and positioning of the various components, the electronic energy created by light excitation can be channelled in any desired part of the supramolecular structure (see, e.g., *J.Am.Chem.Soc. 114* 2944 **1992**); (ii) studies on host-guest systems in which the photochemical and photophysical properties of both partners can be strongly affected by their mutual interaction (see, e.g., *J.Phys.Chem. 95* 2080 **1991**); (iii) interaction of the chromophoric units that are present in species like catenanes and rotaxanes synthesized by the groups of J.-P. Sauvage and J.F. Stoddart (see, e.g., *J.Am.Chem.Soc. 113* 4033 **1991**; *J.Am.Chem.Soc. 114* 193 **1992**). His interest towards the photochemistry of supramolecular systems, and in particularly towards the design of species capable of performing useful light-induced functions (photochemical molecular devices), has led him to write the monograph ***Supramolecular Photochemistry*** (Horwood, Chichester, **1991**, in collaboration with F. Scandola) which has been extremely well accepted (see reviews in *Angew.Chem.Int.Ed.Engl. 31* 104 **1992** and *J.Am.Chem.Soc. 115* 1617 **1993**).

1993-2011

In this period,, most of his activity has been dedicated to the design, construction, and characterization of molecular-level devices and machines in the frame of the bottom-up approach to nanotechnology. This activity has been carried out, in part, in collaboration with the groups of S. Campagna, F. Pina, J.F. Stoddart, and F. Vögtle. An innovative aspect of this research is the idea that the concept of macroscopic device can be extended to the molecular level, and that it is possible to design supramolecular systems capable of performing specific functions upon stimulation with external energy inputs (in particular, with light).

Such an idea has been developed in many papers (vide infra) and illustrated in several review articles (see, e.g., *Chem.Rev. 96* 759 **1996**; *Acc.Chem.Res. 31* 405 **1998**; *Angew.Chem.Int.Ed. 39* 3348 **2000**; *Acc.Chem.Res*., *34* 445 **2001**; *Curr. Opinion Chem. Biol*., *7* 657 **2003**; *Small 1* 278 **2005;** *Topics Curr. Chem*., *262***,** 1, **2005**; *Nanotoday, **2(2)**,* 18 **2007**; *Adv. Funct. Mat.*, *17*, 740, **2007**; *Chem. Soc. Rev*., *38*, 1542 **2009**, *Photochem. Photobiol. Sciences***,** *9***,** 1561, **2010**).

The topic of molecular-level devices and machines has also been extensively and systematically discussed in a monograph, in the frame of the bottom-up approach to nanotechnology (V. Balzani, A. Credi, M. Venturi: ***Molecular Devices and Machines- A Journey in the Nano World***, Wiley-VCH, **2003**). Such a monograph, translated in Chinese and Japanese, has been very well accepted by the scientific community (see reviews in: *Angew. Chem. Int. Ed*., *42*, 2331 **2003**; *ChemBioChem*, *4*, 663 **2003**; *J. Am. Chem. Soc*, *126*, 10191 **2004**). The second edition of this monograph, ***Molecular Devices and Machines- Concepts and Perspectives for the Nanoworld*****,** Wiley-VCH, **2008**, has also been translated in Chinese.

The main results obtained in the field of molecular-level devices and machines can be summarized as follows (the most relevant papers are indicated):

1. Synthesis and characterization of dendrimers for light harvesting antenna systems based on transition metal complexes (*J.Am.Chem.Soc. 116* 9086 **1994**; *Chem. Eur. J. 1* 211 **1995;** *Acc.Chem.Res. 31* 26 **1999**).

2. Photoinduced energy and electron transfer processes between metal complexes connected by flexible or rigid ligands (*J.Am.Chem.Soc. 116* 7692 **1994**; *J.Am.Chem.Soc. 121* 4207 **1999**, *ChemPhysChem 7*, 229, **2006**; *Chem. Eur. J.*, *14*, 10772, **2008**; *New Journal of Chemistry*, *31*, 1944, **2011**).

3. Photochemical, photophysical, and electrochemical behavior of cyclophanes, catenanes, cages, knots, and tweezers (*J.Am.Chem.Soc. 118* 11610 **1996**; *Chem. Eur. J., 5* 984 **1999**; *J.Am.Chem.Soc. 121* 5481 **1999**; *J.Org.Chem. 65*, 4120 **2000;** *Chem. Eur. J.*, *9*, 2982 **2003,** *J.Am.Chem.Soc.*, *128*, 637, **2006**; *J. Org. Chem.*, *73*, 5839 **2008**).

4. Photo- and redox-active dendrimers, including : (i) photoswitchable boxes (*J.Am.Chem.Soc. 121* 6290 **1999**; *J.Am.Chem.Soc. 129* in press **2007**); (ii) fluorescent sensors with signal amplification (*J.Am.Chem.Soc. 124* 6461 **2002**; *J. Mater. Chem. 15*, 2959 **2005**); (iii) light harvesting antennas (*Angew. Chem. Int. Ed*. *41* 3595 **2002**; *Prog. Polymer Sci*. *30*, 453 **2005**); (iv) fluorescent hosts for dyes (*ChemPhysChem* 224 **2000**; *J.Am.Chem.Soc*. *126* 568 **2004**); (v) dendrimers as ligands for metal ions (*J.Am.Chem.Soc*., *125* 4424 **2003**; *Chem.Eur.J*., *10*, 899, **2004**); (vi) molecular batteries (*Chem.Eur.J*., *10*, 6361, **2004**); (vii) self-assembling systems (*J.Am.Chem.Soc*. *126*, 16466 **2004**; *Angew.Chem.Int Ed*. *44*, 4574 **2005**; *Angew. Chem. Int. Ed. 47*, 5265 **2008**; (v) fluorescence depolarization (*ChemPhysChem 7*, 1980, **2006**; *J.Phys.Chem. B*, *111*, 6620 **2007;** *ChemPhysChem*, *10*, 265 **2009**); (vi) charge storing systems (*Chem. Eur. J.*, *14*, 8365 **2008**).

5. Photochromism of molecules capable of performing as "write-lock-read-unlock-erase" molecular switching devices and logic gates (*J.Am.Chem.Soc. 119* 5556 **1997**; *Chem.Eur.J. 4* 1184 **1998**; *J.Mater.Chem.*, *9* 2265 **1999**; *Eur.J.Org.Chem*., 2699 **2002**; *J.Am.Chem.Soc. 125* 987 **2003**; *Chem.Eur.J*., *10* 1519 **2004**); this research line, developed in collaboration with the group of F. Pina, includes a paper on artificial chemical systems capable of mimicking some elementary properties of neurons (*J.Am.Chem.Soc. 122* 4496 **2000**).

6. Molecular-level logic gates based on pseudorotaxanes, rotaxanes and catenanes (*J.Am.Chem.Soc. 119* 2679 **1997**; *J.Am.Chem.Soc. 122* 4496 **2000**; *ChemPhysChem 3*, 101 **2003**).

7. Design and realization of other types of molecular-level devices and machines (*J.Am.Chem.Soc. 120* 11190 **1998**; *Chem.Eur.J. 4* 2411 **1998**; *J Am.Chem.Soc. 121* 4397 **1999**; *J.Am.Chem.Soc. 122* 3542 **2000**; *Chem.Eur.J. 6* 3558 **2000**; *J.Am.Chem.Soc. 122* 3542 **2000**; *Chem.Commun*., 1860 **2001**; *Proc.Natl.Acad.Sci. 99* 4814 **2002**; *J.Am.Chem.Soc. 124* 12786 **2002**; *Photochem.Photobiol.Sci*., *2*, 459 **2003**; *Chem.Eur.J.*, 9 2982 **2003**; *Chem.Eur.J.*, 9 5348 **2003**; *Chem.Eur.J.*, *10* 6375 **2004,** *J.Am.Chem.Soc.*, *128*, 1489 **2006**; *J.Am.Chem.Soc.*, *129*, 4633 **2007**. The papers on a molecular elevator (*Science*, *303*

1845 **2004**), a nanomotor powerd by sunlight (*Proc.Natl.Acad.Sci*. *103* 1178 **2006**), and a molecular-level extension cable (*Proc. Natl. Acad. Sci, USA*, *103* 18411 **2006**) have been highlighted on several scientific journals.

8) Processing Energy and Signals by Molecular and Supramolecular Species (*Chem. Eur. J., 14*, 26 **2008**; *ChemSusChem*, *1*, 26 **2008**; *Chem. Eur. J.*, *15*, 7876 **2009**; *Angew. Chem. Int. Ed.*, *48*, 8516, **2009**).

2011 - Present

In the last few years *Vincenzo Balzani* has continued to work in the field of photochemistry and photophysics (see, e.g., *J. Mater. Chem. C*, in press, **2014**), but his activity has been mainly focused on (i) the energy issue, (ii) chemical education, and (iii) the role of science in society.

The themes of fossil legacy, hydrogen as an energy vector, and electric power have been critically reviewed on *Chem.Asian J. 6* 768 **2011,** *ChemSusChem 4* 21 **2011**, and *Energy Environ.Sci*. *4* 3193 **2011**, respectively**.** His scientific interest on energy, and particularly on solar energy conversion, has been extended to the discussion of related political, social and moral issues first in an essay (*Angew.Chem.Int.Ed*. *46* 52 **2007**) and then in a book entitled *Energy for a Sustainable World* (with N. Armaroli, Wiley-VCH, **2011**), which has received much attention in the scientific community (see, e.g., *Chemistry World*, August 56 **2011** and *Angew.Chem.Int.Ed*. *50* 6704 **2011**).

He has recently published the research book ***Photochemistry and Photophysics: Concepts, Research, Applications*** (with P. Ceroni, A. Juris, Wiley-VCH, **2014**), which has been very favorably reviewed (see, e.g., *Angew.Chem.Int.Ed*. *53* 8817 **2014** and *Chemistry World* October 64 **2014**). The Chinese translation of this book is in progress.

He has also published some educational books for high school students. ***Energia per l'Astronave Terra*** (with N. Armaroli, Zanichelli, **2008** and **2011**) was the winner of the Italian Galileo Prize for scientific education 2008. An updated and enlarged English edition of the same book has recently been published: ***Powering Planet Earth - Energy Solutions for the Future*** (with N. Armaroli and N. Serpone, Wiley-VCH, **2013**). A book on chemical education, written with M. Venturi, has been published in Italian and English: ***Chimica! Leggere e scrivere il libro della Natura***, Scienza Express Edizioni, **2012**, and ***Reading and Writing the Book of Nature***, Royal Society of Chemistry, **2015**.

Vincenzo Balzani believes that scientists have a great responsibility that comes from knowledge, so that it is their duty to educate citizens and help decision makers to find solution for mankind's problems. Therefore he places side by side scientific research and education on various themes including chemistry, science and society, science and peace and, particularly, the energy problem. In the last 15 years, he has delivered more than 50 lectures *per* year in primary, secondary and high schools to disseminate scientific concepts and emphasize the need to reduce disparities within and among countries. His ideas have been illustrated in the prefaces and other sections of his books (see, e.g., the last chapter of *Molecular Devices and Machines-Concepts and Perspectives for the Nanoworld*) and have been summarized in the paper *The role of science and scientists in a complex and fragile world* published on the Special Issue "Science, Responsibility and Governance*"* of *Toxicological and Environmental Chemistry.* He is also Chairman of a scientific committee which has presented a petition *(www.energiaperlitalia.it),* signed by more than 900 scientists, urging the Italian Government to take actions for energy saving, energy efficiency and the development of renewable energy sources.

Conclusion

Vincenzo Balzani is one of the most cited chemists, with about 35000 citations and h-index 96. In the last 20 years, In the last 20 years, his 232 publications have collected 20400 citations, with an average of 88 citations per item. He has given important contributions to the development of Photochemistry, Supramolecular Chemistry, Molecular Nanotechnology, and Solar Energy Conversion.

Vincenzo Balzani has designed and investigated a number of molecular–level devices capable of performing a variety of specific functions, including: (i) systems for information processing (wires, switches, antennas, plug/socket systems, extension cables, memories, logic gates, encoder/decoder, rudimentary neuron-like systems), (ii) devices that, powered by chemical energy, electrochemical energy, or light exhibit machine-like behaviour (piston/cylinder systems, shuttles, lifts, rotary rings, dendritic photoswitchable boxes), and (iii) components for artificial photosynthetic systems.

In his many reviews and books he has illustrated the state of the art in the above mentioned fields and proposed guidelines for future achievements.

The high international reputation of his studies and the appreciation for his innovative work is testified by the great number of invitations to present lectures and seminars all over the world (*vide infra*) and by the highlights on his work that have frequently appeared on top scientific journals.

His books *Photochemistry of Coordination Compounds (1970), Supramolecular Photochemistry (1991), Molecular Devices and Machines-A Journey in the Nano World* (*2003), Molecular Devices and Machines-Concepts and Perspectives for the Nanoworld* (*2008*), *Energy for a Sustainable World* (*2011*), and *Photochemistry and Photophysics: Concepts, Research, Applications* have been and/or are currently adopted as textbooks in several universities worldwide, including China and Japan.

Vincenzo Balzani has pointed out in several occasions (lectures, book prefaces, book reviews, TV interviews, press articles) that today there is a dangerous fracture between science and society. Unfortunately many scientists do not care about the problems of the society and most politicians do not rely on scientists, which is big mistake because we are living in a very fragile world and we are facing more and more difficult problems. In an attempt to build a bridge between the University and the city of Bologna, he has activated a university course entitled "Scienza e Società" that is being attended by both students and citizens. He is very proud of the title "Public Passion" used by *Nature* (*503* 559 **2013**) to comment on the delivery of the Award for Mentoring in Science to him in 2013.

Plenary or Invited Lectures at International Meetings

- X Informal Conference on Photochemistry, Stillwater (USA), 1972.
- VII Intern. Conference on Photochemistry, Jerusalem (Israel), 1973.
- Symposium on Mechanistic and Preparative Aspects of Inorganic and Organometallic Photochemistry, Mulheim (Germany), 1974.
- XI Informal Conference on Photochemistry, Nashville (USA), 1974.
- Workshop on The Current State of Knowledge Concerning Photochemical Formation of Fuels, Boston (USA), 1974.
- Symposium on "Unusual Properties of Inorganic Compounds", Athens, Georgia (USA), 1975.
- Gordon Research Conference on Organic Photochemistry, Tilton, N.H. (USA), 1975.
- Gordon Research Conference on Inorg. Chem., New Hampton, N.H. (USA), 1975.
- XII Informal Conference on Photochemistry, Washington, D.C. (USA), 1976.

- Summer School on Photochemistry, Leuven (Belgium), 1976.
- Meeting on Solar Photochemistry, Orsay (France), 1977.
- XIII Informal Conference on Photochemistry, Clearwater Beach, Florida (USA), 1978.
- VII IUPAC Symposium on Photochemistry, Leuven (Belgium), 1978.
- X Intern. School on Solar Energy Processes, Sogesta, Urbino (Italy), 1978.
- Intern. Conference on Alternative Energy, Milano (Italy), 1980.
- International Symposium on Solute-Solute-Solvent Interactions, Firenze (Italy), 1980.
- Gordon Research Conference on Radicals Ions, Wolfeboro, N.H. (USA), 1980.
- IV Symposium on Photochemistry and Photophysics of Coordination Compounds, Montreal (Canada), 1980.
- III International Conference on Photochemical Conversion and Storage of Solar Energy, Boulder, Colorado (USA), 1980.
- 3eme Cycle en Chemie, University of Fribourg (Switzerland), 1981.
- Atelier de Photochemie, University of Strasbourg (France), 1981.
- X Intern. Conference on Photochemistry, Crete (Greece), 1981.
- V Meeting of the Portuguese Chemical Society, Oporto (Portugal), 1982.
- Groupe Francais de Photochimie, Paris (France), 1982.
- V Intern. Symposium on the Photochemistry and Photophysics of Coordination Compounds, Gif-sur-Yvette (France), 1982.
- 3rd Intern. Symposium on Homogeneous Catalysis, Milano (Italy), 1982.
- XVII Heyrovsky Discussion, Prague (Czechoslovakia), 1983.
- 3eme Cycle en Chimie, Les Diablerets (Switzerland), 1983.
- IV Italian-Czechoslovak Symposium on Catalysis, Torino (Italy), 1983.
- XXXV Southeast Regional ACS Meeting, Charlotte, North Carolina (USA), 1983.
- IV Intern. Symposium on the Photochemistry and Photophysics of Coordination Compounds, London (England), 1984.
- Symposium on Recent Advances in Chemical Routes of Trapping Solar Energy, Bombay (India), 1984.
- Symposium on the Photochemistry of Metal Complexes, Tokyo (Japan), 1984.
- Atelier de Photochimie and Photophysique des Composes Organometalliques et de Coordination, Paris (France), 1985.
- Annual Meeting of the Societè Suisse de Chimie, Berne (Switzerland), 1985.
- VI Conference on Photochemical Conversion of Solar Energy, Paris (France), 1986.

- Gordon Research Conference on Inorg. Chem., Wolfeboro, N.H. (USA), 1986.
- XXIV Intern. Conference on Coordination Chemistry, Athens (Greece), 1986.
- Discussion Group Meeting on Fast Reactions in Solution, Gargnano (Italy), 1986.
- NATO ARW on Photoinduced Charge Separation and Energy Migration in Supramolecular Species, Capri (Italy), 1987.
- VII Intern. Symposium on the Photochemistry and Photophysics of Coordination Compounds, Elmau (FRG), 1987.
- Gordon Research Conf. on Organic Photochemistry, Andover, N.H. (USA), 1987.
- XIII Intern. Conference on Photochemistry, Budapest (Hungary), 1987.
- Italian-Swiss Conference on Photochemistry, Como (Italy), 1987.
- Meeting on Molecular Photochemistry, Hengelhoef (Belgium), 1987.
- Euchem Conference in Inorg. Chem., Dourdan (France), 1988.
- Sixth Symposium on Photochemistry, Eisenach (DDR), 1988.
- Winter College on Atomic and Molecular Physics, ICTP, Trieste (Italy), 1989.
- 25th Euchem Conference on Stereochemistry, Burgenstock (CH), 1989.
- Interdisciplinary Meeting on Luminescence, Bologna (Italy), 1989.
- XXVII Intern. Conference on Coordination Chemistry, Broadbeach (Australia), 1989.
- VIII Intern. Symposium on the Photochemistry and Photophysics of Coordination Compounds, S. Barbara, California (USA), 1989.
- Workshop on Supramolecular Organic Chemistry and Photochemistry, Saarbrucken (FRG), 1989.
- Workshop on Photoredox Reactions and Their Importance in Solar Energy Research, Adelboden (CH), 1989.
- Conference on Recent Trends in Photochemistry, Irbid (Jordan), 1989.
- Workshop on Progress Towards Molecular Scale Electronics, Durham (U.K.), 1990.
- Symposium on Photoinduced Charge Transfer,Rochester, N.Y. (USA), 1990.
- VIII International Conference on Photochemical Conversion and Storage of Solar Energy, Palermo (Italy), 1990.
- XIII IUPAC Symposium on Photochemistry, Warwick, England, 1990.
- Symposium on Molecular Modeling: Theory and Experiment, Elmau (Germany), 1990.
- Symposium on Sensors and Actuators, Enschede (Holland), 1990.
- Conference on Frontiers of the Chemistry of Metal Ions, Firenze (Italy), 1990.
- Meeting on Coordination and Organometallic Chemistry, Lunteren (NL), 1991.

- IX International Symposium on the Photochemistry and Photophysics of Coordination Compounds, Fribourg (CH), 1991.
- XVI International Symposium on Macrocyclic Chemistry, Sheffield (England), 1991.
- NATO ASI School on "Photoprocesses in Transition Metal Complexes, Biosystems, and Other Molecules", Assois (France), 1991 (a series of four lectures)
- EUCHEM Conference on "Supramolecular Reactivity and Catalysis", Padova (Italy), 1991.
- Mediterranean Meeting on Photochemistry, Acireale (Italy), 1991.
- II NATO Science Forum: Supramolecular Chemistry, Taormina (Italy), 1991.
- IV Winter Conference of the Inter-American Photochemical Society, Clearwater Beach, Florida,(USA), 1992.
- 29th Inter. Conference on Coordination Chemistry, Lausanne (Switzerland), 1992.
- European Conference on Molecular Electronics, Padova (Italy), 1992.
- 3eme Cycle en Chemie, Champery (Switzerland), 1992.
- EPA Summer School on "Photoinduced Energy and Electron Transfer in Supramolecular Species", Rimini (Italy), 1992
- International Symposium on Perspectives in Photochemistry, Ferrara (Italy), 1992.
- Second Birmingham Supramolecular Science Symposium, Birmingham, U.K, 1992
- Meeting on Transient Species and Excited States, Belfast, U.K.,1992.
- Second International Conference on Solar Energy Storage, Cairo (Egypt), 1993.
- Symposium on Conceptual Tools for Understanding Chemistry, Trieste (Italy), 1993.
- X International Symposium on the Photochemistry and Photophysics of Coordination Compounds, Sendai (Japan), 1993.
- XIV International Conference on Photochemistry, Vancouver (Canada), 1993.
- NATO ARW on Photoinduced Electron Transfer Reactions, Albufeira (Portugal), 1993.
- Latin American Inorg. Chem. Meeting, Santiago de Compostela (Spain), 1993
- School on Photochemistry, ICPAC, Trieste (Italy), 1993
- Second Conference on Laser in Chemistry, ICSHT Trieste (Italy), 1993.
- Nato ARW on Transition Metals in Supramolecular Chemistry, S. Margherita Ligure (Italy), 1994.
- Workshop on Molecular Recognition Chemistry, Stockholm (Sweden), 1994.

- X Inter. Conf. on Photochemical Conversion and Storage of Solar Energy, Interlaken (Switzerland), 1994.
- Symposium on Supramolecular Chemistry, Bordeaux (France), 1994.
- 18° Meeting of the Sociedade Brasileira de Quimica, Caxambu (Brasil), 1995.
- VII Encontro Brasileiro de Fotoquimica e Fotobiologia, Caxambu (Brasil) 1995.
- XIX DOE Solar Photochemistry Conference, Tamiment (USA), 1995.
- VIII Symposium on Novel Aromatic Compounds, Braunschweig (Germany), 1995.
- NATO ARW on Modular Chemistry, Estes Park, Colorado (USA), 1995.
- NATO ARW on Physical Supramolecular Chemistry, Miami (USA), 1996.
- Symposium on Contemporary Aspects of Photochemistry, Birmingham (U.K.), 1996.
- EUCHEM Conference on Nitrogen Ligands in Organometallic Chemistry and Homogeneous Catalysis, Como (Italy), 1996.
- Electron and Ion Transfer in Condensed Media, ICTP, Trieste, Italy, 1996.
- Workshop on Ru-Mn Artificial Photosysnthesis, Paris (France), 1997.
- Spring School on Synthetic Electroactive Organic Architectures, Siena (Italy), 1977.
- Workshop on Heterosupramolecular Chemistry, Ferrara (Italy) 1997.
- XII International Symposium on the Photochemistry and Photophysics of Coordination Compounds, Saint Michael's College, Vermont (USA), 1997.
- VI European Symposium on Organic Reactivity, Louvaine-la Neuve (Belgium), 1997
- Symposium on Supramolecular Chemistry, Accademia dei Lincei, Rome (Italy), 1997.
- III National Meeting of the Portuguese Physical-Chemistry Society, Lisbon, 1997.
- Workshop on Applications of Supramolecular Systems, Tel Aviv (Israel), 1998
- Euchem Conference on Artificial Photosynthesis, Sigtuna) (Sweeden, 1998.
- Conference on Reactive Intermediates and Reaction Mechanisms, Ascona (CH), 1998.
- XXXIII International Conference on Coordination Chemistry, Florence (Italy), 1998.
- NATO AWR on Supramolecular Science, Lerici (Italy), 1998.
- Luigi Galvani International Workshop, Bologna (Italy), 1998.
- International Francqui Symposium on Conjugated Polymers, Oligomers, and Dendrimers, Bruxelles (Belgium), 1998.
- Material Research Society Fall Meeting, Boston (USA), 1998.
- 4 Center (Amsterdam, Bologna, Bonn, Fribourg) Meeting, Bologna (Italy), 1999.
- International Symposium on Intra- and Intermolecular Electron Transfer, Konstanz (Germany), 1999

- Workshop on Ru-Mn Artificial Photosynthesis, Cetraro (Italy), 1999.
- Symposium on Phthalocyanines and Related Compounds, Madrid (Spain), 1999.
- XXIII International Symposium on the Photochemistry and Photophysics of Coordination Compounds, Lipari Italy), 1999.
- IV International Conference on Materials Chemistry, Dublin (Ireland), 1999.
- XXIV International Symposium on Macrocyclic Chemistry, Barcelona (Spain), 1999.
- XIX International Conference on Photochemistry, Durham, NC (USA), 1999.
- Symposium on Frontiers in Photophysics and Photochemistry, Leuven (B), 1999.
- 1st International Dendrimer Symposium, DECHEMA, Frankfurt (Germany), 1999.
- German-Italian Meeting of the Coimbra Group: "Chemistry at the Beginning of the Third Millennium", Pavia (Italy), 1999.
- Trends in Transition Metal Chemistry: Towards the Third Millenium, Pisa (Italy), 2000.
- 4 Center (Amsterdam, Bologna, Bonn, Fribourg) Meeting, Amsterdam (NL), 2000.
- XVIII IUPAC Symposium on Photochemistry, Dresden (Germany), 2000.
- Science and Knowledge: towards which Rationality? Bologna (Italy), 2000.
- Inorganic Crystal Engineering, Dalton Discussion 3, Bologna (Italy), 2000.
- Photophysics and Photochemistry 2000, Costa de Estoril (Portugal), 2000.
- Functional Supramolecular Systems, Bochum (Germany) 2000.
-Meeting on Molecular Science, Valencia (Spain), 2000.
- Meeting on Nanotechnology for Materials, University of Milano Bicocca, Milano (Italy), 2001.
- VI International Conference on Solar Energy and Applied Photochemistry, Cairo (Egypt), 2001.
- 4 Center (Amsterdam, Bologna, Bonn, Fribourg) Meeting, Taormina (Italy), 2001.
- XII European Symposium on Organic Chemistry, Groningen (NL), 2001.
- VI European Mediterranean Conference in Inorganic Chemistry, Barcellona (Spain) 2001.
- Conference on Molecular Nanotechnology, Augustusburg (Germany), 2001.
- TMR Meeting on Nanometer Size Metal Complexes, FRAE-CNR, Bologna (Italy).
- Karl-Ziegler Symposium on Molecular Machine, GDCh, Wurzburg (Germany), 2001.
- Workshop on Molecular Photomagnetism, Seeheim (Germany), 2001.
- International Workshop on Molecular Motors, Dechema, Frankfurt (Germany), 2001
- X Meeting on New Compounds and Materials, Bressanone (Italy), 2001.

- Meeting on Nanotechnology, Deparment of Biochemistry, Universitry of Bologna, Bologna (Italy), 2002.
- First Workshop on Current Trends in Nanotechnologies, Catania (Italy) 2002
- International Symposium on Nanochemistry, Valencia (Spain) 2002.
- Workshop on Material Science in Italy in the European Frame, Firenze (Italy), 2002.
- Symposium on Diversity in Organic Chemistry, Wageningen (The Netherlands) 2002.
- Symposium on Revisiting the "Chemistry War", 1914-1923, Institute of Adavanced Study, Bologna (Italy), 2002.
- XXVII International Symposium on Macrocyclic Chemistry, Park City (USA), 2002.
- NATO ASI School on Molecular Electronics, Pisa (Italy) 2002.
- XVI IUPAC Conference on Physical-Organic Chemistry, San Diego (USA), 2002.
- Euresco Conference on Molecular Rods, Wires, and Switches, San Feliù (Spain), 2002.
- V Japan-Italy Seminar, Venice (Italy), 2002.
- Meeting of the European Network on Molecular Level Devices and Machines, Pavia (Italy), 2002.
- 2° Sigma Aldrich Young Chemists Symposium, Riccione (Italy), 2002.
- XVIII Croatian Meeting of Chemists and Chemical Engineers, Zagreb (Croatia), 2003.
- Meeting on Dendrimers and Nanoscience, University of Bordeaux, Bordeaux (France), 2003.
- II Mediterranean Meeting on Photochemistry, Giardini Naxos, Italy, 2003.
- XXVIII International Conference on Solution Chemistry, Debrecen (Hungary), 2003.
- III International Dendrimer Symposium, Berlin (Germany), 2003.
- International Symposium on Templates, Bonn (Germany), 2003.
- The Supramolecular View of Life: A Discussion, Institute of Advanced Study, Bologna, 2003.
- Second National Conference on Nanoscience and Nanotechnology, Bologna (Italy), 2004.
- 5^{th} Symposium on Supramolecular Chemistry in Ireland, Dublin (Ireland), 2004.
- 2^{nd} Italian-German Workshop on Electrochemistry, Bologna (Italy), 2004.
- III Chianti Electrochemistry Meeting on Metal Containing Molecules, Siena (Italy), 2004.

- Euresco Conference on Chemistry and Physics of Multifunctional Materials, Tomar (Portugal), 2004.
- XX Congress of the Internationa Union of Crystallography, Firenze (Italy), 2005.
- Scientia Rerum, Bologna (Italy), 2005.
- First European Conference on Chemistry fot Life Sciences, Rimini (Italy), 2005.
- Euresco Conference on Supramolecilar Chemistry, Obernai (France), 2005.
- New Technologies for Energy, Italgas, University of Torino, 2006.
- 3rd World Congress on Biomimetics and Nano-Bio, Lausanne, CH, 2006.
- Nanoscience & Nanotechnology n&n6, Frascati, Italy, 2006.
- Trends in Modern Chemistry, 3rd Aarhus winter Meeting, Aarhus (DK), 2007.
- Europe's Energy Policy: The Role of Chemistry, Brussels (B), 2007.
- International Conference on "Molecular Machines and Sensors", Shanghai, China, 2007.
- XVII International Symposium on the "Photochemistry and Photophysics of Coordination Compounds", Dublin (Ireland), 2007.
- International Conference on "Functional Materials and Molecular Devices for Nanoelectronics and Nanosensing", Rome (Italy) 2007.
- Meeting on "Solar Energy and Artificial Photosynthesis", The Royal Society, London (UK), 2007
- 41st IUPAC World Chemistry Congress, Torino (Italy), 2007.
- Forum on Ethics and Science for the Environment, Ferrara (Italy), 2007.
- 21st Solvay Conference, Bruxelles, 2007.
- New Frontiers in Micro and Nano Photonics, Florence (Italy), 2008.
- International Conference on "Energy crisis, water shortage, and climate changes in the Mediterranean area: the involvement of chemistry", Castiglion della Pescaia, 2008.
- XXII IUPAC Symposium on Photochemistry, Gothenburg, Sweden, 2008.
- XIII Symposium on Luminescence Spectrometry, Bologna, Italy, 2008.
- Public Lecture, Second EuCheMS Chemistry Congress, Torino, Italy, 2008.
- XIII Summer Course on Pharmaceutical Analysis, Rimini, Italy, 2008.
- New Trends in Science and Education Technology, University of Modena and Reggio Emilia: Energy for Spaceship Earth; April 23, 2009.
- XX Italian-Spanish Congress on Thermodynamics of Metal Complexes, Pisa, Italy, June 7-11, 2009.
- VII European Biophysics Congress, Genova, July 11-15, 2009.

- International Congress "The Centenary", Padova, Italy, September 2, 2009.
- Peter Belser's Birthday Symposium, Fribourg (CH), Spetember 28, 2009.
- IDROBIO: Biological processes as a possible source for renewable energy, Accademia dei Lincei, Rome, 2-3 November 2009.
- European Academy of Sciences, Award Ceremony, Bologna, November 6, 2009.
- Jean-Pierre Sauvage' Symposium, Strasbourg, 26-27 November 2009.
- European Energy Conference, Barcelona, April 19-23, 2010.
- Symposium on "Ciamician Paternò Heritage", Ferrara (Italy), July 17, 2010.
- XXX European Congress of Molecular Spectroscopy, Florence, September 3, 2010.
- "Natural and Artificial Photosynthesis: Basic Concepts", 8th ECHEMS Meeting, Bertinoro (Italy), June 29, 2011.
- SuNEConference), Palermo, July 11, 2011.
- "Chemistry and Creativity", Opening lecture, International Year of Chemistry and Austrian Chemistry Days, Linz (Austria), September 16, 2011.
- "Natural and Artificial Phorosynthesis", Workshop on New Materials for Renewable Energy, ICTP, Trieste, October 19, 2011.
- "Chemistry and Creativity", "C2EN2N Annual Plenary Meeting, Milano (Italy), April 21, 2012
- The role of Science in a Fragile World", XXII ICCE – XI ECRICE, Rome (Italy), July 16, 2012.
- "Natural and Artificial Photosynthesis: Basic Concepts", European Academy of Sciences, Liege, October 25, 2012.
- Energy for a sustainable world, *Decarbonized Regions EU,* Bologna, Italy, 15 January 2014
- Energy for a sustainable world*, Ceramics for energy 2015*, Faenza, Italy, 14 May 2015

Plenary or Invited Lectures at Italian Meetings

- V Convegno Nazionale di Chimica Inorganica, Taormina, 1972.
- VIII Congresso dell'Associazione Italiana di Chimica Fisica, Salice Terme (Pavia), 1973.
- Convegno CNR su Fotochimica e Chimica delle Radiazioni, Roma, 1975.
- I Scuola di Fotochimica GIF, Ferrara, 1976.
- XIII Congresso della Società Chimica Italiana, Merano (Bolzano), 1978.

- XIII Congresso Nazionale di Chimica Fisica, Catania, 1978.
- II Scuola di Fotochimica, Perugia, 1978.
- XII Convegno Nazionale della Divisione di Chimica Organica, Ancona, 1980.
- XIII Congresso Nazionale di Chimica Inorganica, Camerino, 1980.
- XVI Congresso Nazionale di Chimica Fisica, Abano Terme (Padova), 1981.
- Congresso sulla Catalisi Omogenea ed Eterogenea, Torino, 1983.
- Scuola di Fotochimica GIF., Bologna, 1986.
- II Seminario di Chimica Inorganica e Metallorganica, Gargnano, 1986.
- Convegno sul Consiglio Nazionale delle Ricerche in Emilia-Romagna, Bologna, 1986.
- Simposio su "Fotochimica e Applicazioni", Milano, 1988.
- Riunione scientifica del Centro Interuniversitario di Chimica Fisica, Assisi, 1988.
- Convegno della Società Chimica Italiana, Milano, 1988.
- Minisimposio "Fotosintesi", Congresso della Società Chimica Italiana, Perugia, 1989.
- V Convegno della Società Italiana per le Ricerche sulle Radiazioni, Roma, 1989.
- Congresso della Società Chimica Italiana, San Benedetto del Tronto, 1990.
- Incontro su "Sintesi e metodologia speciali in Chimica inorganica, CNR, Padova, 1990.
- Microsimposio sulla Chimica Supramolecolare, SCI, Chianciano Terme, 1991.
- Simposio su " Chimica Supramolecolare", Accademia dei Lincei, Roma, 1992.
- I° Congresso Nazionale di Chimica Supramolecolare, Pavia, 1992
- Worshop su "Modelli per lo studio teorico di processi reattivi", Pisa, 1993.
- Convegno Nazionale di Fotobiologia e Fotochimica, Volterra, 1994.
- XXVII Congresso Nazionale di Chimica Fisica, Montepaone, 1994.
- Seminario su “Chimica Fisica del Riconoscimento Molecolare”, Torino, 1994.
- Riunione su "Sistemi supramolecolari e collettivamente organizzati, CNR Milano, 1994.
- Convegno "Verso la complessità molecolare ", Villa Duodo, Monselice, 1995.
- XVIII Congresso della Società Chimica Italiana, Milano, 1995.
- Incontro su "Supramolecole, autoreplicazione e nuove strutture in chimica", Istituto Lombardo Accademia di Scienze e Lettere, Milano, 1996.
- I Scuola di Chimica Inorganica per Dottorandi, Pavia, 1996.
- Simposio su "Chimica dei Plasmi e Laser-Chimica", Università di Bari, 1996.
- Simposio su "L'eredità di G. Ciamician a Bologna", Università di Bologna, 1996.

- Seminario Nazionale di Chimica Fisica: "Fotochimica", Torino, 1997.
- Discorso Inaugurale, Anno Accademico 1997-98, Università di Bologna, 1997.
- La Chimica come risorsa culturale al servizio della Società, Centro Studi Donati, Bologna, 1998.
- Settimana della Scienza e della Tecnologia, Università di Bologna, 1998.
- Convegno su Determinismo e Complessità, Nova Spes, Roma, 1998.
- Scuola di Fotochimica GIF, Bologna, 1998.
- IV Seminario Nazionale di Spettroscopia Analitica, Gargnano, 1999.
- Scuola di Specializzazione in Sintesi Chimica dell'Università di Milano,1999.
- XXIV Corso Estivo di Chmica Organica "A. Corbella", Gargnano, 1999.
- Materiali Molecolari Avanzati per Fotonica ed Elettronica, Villasimius, Cagliari, 1999.
-Edichem 99: "La Chimica nella Prospettiva del Nuovo Secolo", Bari, 1999.
- Scuola di specializzazione in sintesi chimica, Milano, 2000.
- XX Congresso Nazionale della Società Chimica Italiana, Rimini, 2000.
-XX Corso Avanzato in Chimica Farmaceutica, Urbino, 2000.
- Nuovi orientamenti nella sintesi organica, SCI, Milano, 2000.
- Scuola Nazionale di Fotochimica, GIF, Bologna, 2001.
- Convegno su Creatività Umana ed Innovazione Scientifica, Bologna, 2002
- Convegno su Recenti Sviluppi in Chimica Inorganica e Fotochimica, Ferrara, 2002
- Scienza a Porte Aperte, Facoltà di Scienze, Università di Salerno, 2002.
- Towards Computational System Architectures Based on Molecular Level Devices, Dipartimento di Chimica "G. Ciamician", Università di Bologna, 2002.
- Riflessioni sulla chimica e dintorni, La Civiltà delle Macchine, Forlì, 2003.
- Luminescenza: dalla scoperta della Pietra di Bologna alle più recenti applicazioni, Università di Bologna, Bologna, 2003.
- Scuola di Specializzazione in Sintesi Chimica dell'Università di Milano, Milano, 2003.
- Colloquio Galileiano, Dottorato in Scienze, Università di Pisa, Pisa, 2003.
- Inaugurazione sito divulgativo Università di Bologna, Bologna, 2003.
- Trasmissione sulle Armi Chimiche, Radio 3 Scienza, 2003.
- Worshop “Scienza e Pace: Paradigmi e Pratiche a Confronto”, Modena, 2003.
- XXXIII Congresso Nazionale di Chimica Fisica, Napoli, 2004.
- III Scuola Nazionale di Fotochimica, GIF, Bologna, 2004.

- X Scuola Nazionale di Scienza dei Materiali, Sestri Levante, 2004.
- Festival della Scienza, Genova, 2004,
- XII Convegno Nazionale della Società Italiana per le Ricerche sulle Radiazioni, Genova, 2004.
- La rivoluzione Einstein, Università di Bologna, 2004.
- Diritto alla Scienza: la cultura scientifica in Italia, Firenze, 2005.
- Ricerca scientifica ed energia del futuro, Senigallia , 2005.
- ScienzaSocietà Scienza, Cagliari, 2005
- XI Scuola Nazionale di Scienza dei Materiali, Cortona, 2005.
- Giornata in ricordo di Vittorio Ricevuto, Messina, 2005.
- Sigma Aldric Young Chemists Symposium, Riccione, 2005.
- Costruttori di Molecole, Festival della Scienza, Genova, 2005.
- Perchè la Scienza, Radio 3 Scienza, 2005.
- VI Convention Nazionale Ambiente-Ricerca-Giovani, Bologna (2005).
- Il secolo fragile, Settimana della Scienza, CNR, Bologna, 2006.
- I Giovani e la Chimica in Friuli-Venezia Giulia, Università di Trieste, Trieste, 2006.
- High-tech Engines and Cars, Modena, Italy, 2006.
- Comportamenti etici per uno sviluppo sostenibile, Università di Ferrara, 2006.
- Il Consiglio Europeo delle Ricerche: le ricerche di frontiera, Università di Bologna, 2006.
- V Convegno Nazionale AICIng, Torino, 2006.
- XXII Congresso Nazionale della Società Chimica Italiana, Firenze, 2006.
- I Chimici e le piante, Storia e Ambiente, Bologna, 2006.
- La ricerca del futuro: quale scienza per quale sviluppo, Genova, 2006.
- Convegno Nazionale di Fotochimica, Salice Terme, 2006.
- Convegno su “Le fonti di energia”, Accademia dei Lincei e Accademia delle Scienze, Torino, 2007.
- Convegno “Made in tomorrow”, La triennale di Milano, Milano, 2007.
- Scuola di Fotochimica GIF, Bologna, 2007.
- Convegno “Giacomo Ciamician, genio della chimica e profeta dell’energia solare”, Bologna, 2007.
- VIII Congresso Nazionale di Chimica Supramolecolare, Trieste, 2007.
- Giornata di studio su”L’accumulo dell’energia elettrica nell’era delle fonti rinnovabili”, Facoltà di Ingegneria, Università di Bologna, 2007.

- Sigma Aldric Young Chemists Symposium, Riccione, 2007.
- Giornata di stodio sul fotovoltaico, Università di Padova, 10 giugno 2008.
- Congresso della Facoltà di Scienze per il decennale dell'università dell'Insubria, Como, 12 giugno 2008.
- XXXII Convegno Nazionale della Divisione Chimica Organica, Taormina, 26 giugno 2008.
- IX Convention nazionale ARG (Ambiente, ricerca, Giovani), Cinisi (Sicilia), 2008.
- Convegno su "Le energie rinovabili", CerviaAmbiente, Cervia, 2008.
- Cronobie 08: Il futuro (è) la scienza, Bologna, 2008.
- Lezioni di Valore, Premio Alta Qualità, Bologna, 2008.
- Convegno "Più energia per la sicurezza alimentare", Regione Emilia Romagna, Bologna (2008).
- Convegno su "L'ambiente e la ricerca di energie alternative", Fondazione Università di Mantova, 21 febbraio 2009.
- Università di Camerino, giornata di studio "Energia e sostenibilità", 18 marzo 2009.
- Convegno su Dmitry Mendelev "140 anni dalla presentazione del Sistema Periodico, 28-29 maggio, Accademia dei Lincei, Roma, 2009.
- Convegno su "Storia naturale della creatività", Accademia dei Lincei, Roma, 3-4 giugno 2009.
- Congresso BioEcoGeo, Gruppo 24ore, Milano, 9 giugno 2009.
- Workshop "Energia e Radiazioni", SIRR, Napoli, 9 novembre 2009.
- Convegno su "Problemi emergenti sulla evoluzione della vita", Istituto Veritatis Splendor, Bologna, 5 febbraio 2010.
- Giornata Mondiale della Chimica, Accademia delle Scienze, Bologna, 26 marzo 2010
- Incontro su "Energia nucleare ed energie rinnovabili a confronto", Centro Galvani, Università di Bologna, 9 aprile 2010.
- Dibattito su "Energia nucleare: risorsa o rischio?", Fondazione Garzanti, Forlì, 14 aprile 2010.
- Le nuove politiche per l'energie ed il clima in Emilia-Romagna, in Europa e nel mondo, Conversazioni d'Europa, Bologna, 10 maggio 2010.
- Energia e futuro sostenibile da Enrico Mattei ai nostri giorni, Convegno UCID, Milano, 28 maggio 2010.
- Scuola estiva sull'energia di Sesto per dottorati (Università di Trieste), 28 giugno, 2010.

- Corso di Formazione “Insegnare scienze, … come unire formazine ed etica”, Crevalcore (BO), 2 settembre 2010.
- V Corso Nazionale di Introduzione alla Fotochimica, Bologna, 13-15 settembre 2010.
- XXXVIII Congresso Nazionale di Chimica Inorganica, Trieste, 13-16 settembre 2010.
- IV Congresso Nazionale ASPO Italia, Università di Trento, 5 novembre 2010.
- “Il Cortile dei Gentili”, Università di Bologna, 12 febbraio 2011.
- La Chimica e il futuro", Inaugurazione dell'Anno Internaziomale della Chimica, Accademia dei Lincei, Roma, 30 marzo 2011.
- Convegno: “La Cultura della Responsabilità: Etica, Chimica, Ambiente”, Modena, 29 aprile 2011.
- “Molecole d’autore”, convegno Scienza ed Arte, Milano, 5 maggio 2011.
- Convegno “Globalizzazione e mondializzazione”, Associazione Almae Mater Emeriti, Bologna, 20 giugno 2011.
- “Il problema ei problemi: l’energia”, Anno Internaziomale della Chimica, atenei piemontesi, Torino, 12 ottobre 2011.
- “Chimica e Creatività”, Anno Internazionale della Chimica, Parma, 22 ottobre 2011.
- “Il ruolo della scienza in un mondo fragile”, Dialogho fra scienza e società, Università di Roma, 1 marzo 2012.
- “Energia, risorse, ambiente” Un senso al Futuro, Piano strategico Metropolitano, Bologna, 29 marzo 2012.
- “Energia per un Mondo Sostenibile”, Pioneers to practice, ASTER, Bologna, 31 maggio 2013.
- “Energia: La profezie di Ciamician, le difficoltà del presente, e speranze per il futuro”, VI Corso Nazionale di Introduzione alla Fotochimica, Bologna, 3 giugno 2013.
- “La Chimica e l’Energia”, XIV Congresso Nazionale di Chimica dell’Ambiente e dei Beni Culturali, Rimini, 2-5 giugno 2013.
- “Fotosintesi naturale ed artificiale”, VI Corso Nazionale di Introduzione alla Fotochimica, Bologna, 5 giugno 2013.

“Energia, materie prime e ambiente”, Convegno Federmanager, Bologna, 12 aprile 2012.

- “Corso energia e clima”, Scuola di studi superiori, Torino, 4 maggio 2012.
- Scienza, chimica e Creatività”, verso la Scuola delle Competenze, Bologna, 16 maggio 2012.
- “Scienza, società e pace”, Scuola della Pace, Sovere, 7 agosto 2012.

- “Discorsi sul Futuro”, Meeting CoBaCo, Bologna, 23 novembre 2012.
- “Cibo, acqua, risorse: abbondanza o scarsità?”, Scuola della Pace Sovere, 4 gennaio 2013.
- “Energia per un mondo sostenibile”, VI Convegno giovani della SCI, Università La Sapienza, Roma, 17 giugno 2014.
- “La Guerra e la Scienza”, Scuola della Pace 2014, Sovere, 14 agosto 2014.
- “Energia per un mondo sostenibile”, UrbanPromo XI edizione, Milano, 11 novembre 2014.
- “Il mondo nuovo dell’antropocene”, Scuola della Pace 2015, Sovere, 2 gennaio 2015

Lectures at Universities and Research Centers

(About 300 public lectures and high school lectures delivered since 2005 on the themes of energy, science, society and peace are not listed)

- University of Bologna, Bologna (Italy), 1969.
- Wayne State University, Detroit, Michigan (USA), 1972.
- Bell Telephone Laboratories, Murray Hill, New Jersey (USA), 1972.
- Euratom Research Center, Ispra (Italy), 1973.
- Boston University, Boston, Massachussetts (USA), 1974.
- University of Ferrara, Ferrara (Italy), 1974.
- University of North Carolina, Chapel Hill, North Carolina (USA), 1975.
- North Carolina State University, Raleigh, North Carolina (USA), 1975.
- Istituto di Ricerche "G. Donegani", Novara (Italy), 1975.
- University of Bologna, Bologna (Italy), 1975.
- Hahn-Meitner Institut, Berlin (Germany), 1976.
- Centro di Ricerche Montedison, Milano (Italy), 1976.
- University of Pisa, Pisa (Italy), 1976.
- University of Bologna, Bologna (Italy), 1977.
- University of Padova, Padova (Italy), 1977.
- Snamprogetti, San Donato Milanese, Milano (Italy), 1978.
- Ecole Polytechnique Federale, Lausanne (Switzerland), 1979.
- Universite Louis Pasteur, Strasbourg (France), 1979.
- Energy Research Center, Hebrew University, Jerusalem (Israel), 1979.
- Technion, Haifa (Israel), 1979.
- Weizmann Institute, Rehovot (Israel), 1979.

- Ben Gurion University of Beer-Sheba (Israel), 1979.
- Boston University, Boston, Massachusetts (USA), 1980.
- Columbia University, New York (USA), 1980.
- Brookhaven National Laboratorie, Upton, New York (USA), 1980.
- University of Modena, Modema (Italy), 1981.
- University of Berne, Berne (Switzerland), 1981.
- Montepolimeri Research Center, Ferrara (Italy), 1982.
- Center for Fast Kinetics Research, University of Texas, Austin, Texas (USA), 1983.
- University of Pisa, Pisa (Italy), 1984.
- Tohuko University, Sendai (Japan), 1984.
- University of Strasbourg, Strasbourg (France), 1985.
- University of Alberta, Edmonton (Canada), 1985.
- University of Calgary, Calgary (Canada), 1985.
- University of British Columbia, Vancouver (Canada), 1985.
- Simon Fraser University, Vancouver (Canada), 1985.
- University of Victoria, Victoria (Canada), 1985.
- University of Washington, Seattle (USA), 1985.
- Oregon State University, Corvallis (USA), 1985.
- University of Oregon, Eugene (USA), 1985.
- University of California, Davis (USA), 1985.
- University of California, S. Barbara (USA), 1985.
- University of California, Irvine (USA), 1985.
- University of Southern California, Los Angeles (USA), 1985.
- University of Catania, Catania (Italy), 1985.
- Scuola normale Superiore, Pisa (Italy), 1986
- Politecnico di Milano, Milano (Italy), 1986.
- University of Milano, Milano (Italy), 1987.
- Igen Inc., Rockville, Ma. (USA), 1987.
- Polaroid Corp., Cambridge, Mass. (USA), 1987.
- University of Barcellona, Barcellona (Spain), 1988.
- University of Parma, Parma (Italy), 1988.
- Rockfeller University, New York (USA), 1988.
- The Austrian Chemical Society, Vienna (Austria), 1988.
- University of Fribourg, Fribourg (Switzerland), 1988.

- Gesellschaft Deutscher Chemiker, University of Erlangen, Erlangen (FRG), 1988.
- University of Regensburg, Regensburg (FRG), 1988.
- University of Messina, Messina (Italy), 1988.
- University of Cosenza Cosenza (Italy), 1989.
- University of Pavia, Pavia (Italy), 1989.
- Department of Theoretical Chemistry, University of Sydney (Australia), 1989.
- Department of Chemistry, University of Adelaide (Australia), 1989.
- Department of Polymer Science CSIRO, Melbourn (Australia), 1989.
- Laboratory of Biodynamics, University of California at Berkeley (USA), 1989.
- Chemical Society of Fribourg, Fribourg (Switzerland), 1989.
- University of Bayreuth, Bayreuth (FRG), 1990.
- Emory University, Atlanta (Georgia, USA), 1990.
- Georgia State University, Atlanta (Georgia, USA), 1990.
- University of Strasbourg, Strasbourg (France), 1990 (a series of four seminars).
- University of Amsterdam, Amsterdam (NL), 1990.
- Scuola Normale Superiore, Pisa (Italy), 1990.
- State Pedagogical University, Leningrad (USSR), 1991.
- University of Novosibirsk, Novosibirsk (USSR), 1991.
- Institute of Chemical Kinetics, Academy of Sciences, Novosibirsk (USSR), 1991.
- Institute of Chemical Physics, Academy of Science, Moscow (USSR), 1991.
- Department of Chemistry, University of Moscow, Moscow (USSR), 1991.
- "Frontiers of Science" Lecture, University of Konstanz, Konstanz (Germany), 1991.
- Department of Chemistry, University of Pavia, Pavia (Italy), 1992
- Molecular Electronic Seminar, University of Stuttgart, Stuttgart (Germany), 1992.
- Innogenetics, Gent (Belgium), 1992.
- Francqui Lecture, University of Leuven, Leuven (Belgium), 1992
- Department of Organic Chemistry, University of Leuven (Belgium), 1992 (a series of twelve lectures).
- Faculty of Science, University of Bologna, Bologna (Italy), 1992.
- School of Chemistry, University of Birmingham, Birmingham (England), 1992
- Department of Chemistry, Dublin City University, Dublin (Ireland), 1992
- Department of Organic Chemistry, The Royal Institute of Technology, Stockholm (Sweden), 1993
- Department of Physical Chemistry, Uppsala University, Uppsala (Sweden), 1993

- Department of Physical Chemistry, University of Umeå Umeå (Sweden), 1993
- Department of Chemistry, University of Goteborg, Goteborg (Sweden), 1993
- The Royal Swedish Academy of Sciences, Stockholm (Sweden), 1993
- Chemische Gesellschaft Zürich, Zürich (Switzerland), 1993.
- Laboratorium für Organische Chemie ETH, Zürich (Switzerland), 1994
- Technische Universität Berlin, Berlin (Germany), 1994
- Institüt für Physikalische Chemie, University of Frankfurt, Frankfurt (Germany), 1994
- Fachbereich Chemie, Universität Leipzig, Leipzig (Germany), 1994
- Accademia delle Scienze, Torino (Italy), 1994
- Department of Organic Chemistry, University of Bordeaux, Bordeaux (France), 1994
- Christmas Lecture, ICoCEA-CNR, Bologna (Italy), 1994
- Facoltà di Chimica Industriale, Univ. di Bologna, Bologna (Italy), 1995
- Louisiana State University, New Orleans, USA, 1995
- School of Chemistry, University of Bristol, Bristol (UK), 1996
- Department of Chemistry, University Colloge Dublin, Dublin (Ireland), 1996
- Department of Chemistry, University of Dundee, Dundee (UK), 1996
- Department of Chemistry, University of Durham, Durham (UK), 1996
- Department of Chemistry, University of Chicago, Chicago (USA), 1996
- Department of Chemistry, University of Notre Dame, Notre Dame (USA) 1996
- Department of Chemistry, Northwestern University, Evaston (USA), 1996.
- Department of Chemistry, University of Bonn, Bonn (Germany), 1996
- Institute of Inorg. Chem., University of Fribourg, Fribourg (CH), 1996
- Dipartimento di Chimica, Università di Napoli, Napoli (Italy), 1997
- Scuola di specializzazione, Università di Napoli, Napoli (Italy), 1997
- Chemical Physics Seminar, UCLA, Los Angeles (USA), 1998
- Blacet Lecture, Department of Chemistry and Biochemistry, UCLA, Los Angeles (USA), 1998
- Facoltà di Scienze, Università di Salerno, Salerno (Italy), 1998
- Department of Chemistry, Boston University, Boston (USA), 1998.
- The Luigi Sacconi Memorial Lecture, Firenze (Italy), 1999.
- Dipartimento di Chimica, Università di Camerino, Camerino (Italy), 1999.
- Dipartimento di Chimica, Università di Parma, Parma (Italy), 1999.
- Organic Chemistry Department, University of Madrid, Madrid (Spain), 1999.
- Università di Ferrara: Scienza 2000, Ferrara (Italy), 1999

- Scuola Normale Superiore di Pisa, Colle val d'Elsa (Italy), 1999.
- Corso di Laurea in Scienze dell'Informazione, Cesena (Italy, 1999.
- Facoltà di Scienze, Università di Bologna, Bologna (Italy), 2000.
- Faculty of Science, University of Amsterdam, Amsterdam (NL), 2000
- Scientiae Munus, Parma (Italy), 2000.
- Campus Colloquia, Area di Ricerca CNR, Bologna (Italy), 2000.
- Frontiers of Chemistry lecture, Wayne State University, Detroit (USA), 2001.
- Department of Chemistry, Rutgers University, Newark (USA), 2001.
- Dipartimento di Scienza dei Materiali, Università di Milano-Bicocca (Italy), 2001.
- School of Chemistry, University of Birmingham, Birmingham (UK) 2001.
- Scuola di Specializzazione in Sintesi Chimica, Università di Milano, Milano (Italy), 2001.
- Supramolecular Chemistry Course, University of Amsterdam, Amsterdam (NL), 2001
- Institut of Organic Chemistry and Biochemistry, University of Freiburg (Germany), 2002.
- Ecole Nationale Supérieure de Chimie de Mulhouse (France), 2002.
- Institut of Organic Chemistry, University of Karlsrhue (Germany), 2002.
- Institut de Chimie, University of Strasbourg (France), 2002
- Scuola di Specializzazione in Sintesi Chimica, Università di Milano, Milano (Italy), 2002.
- Società Chimica Italiana, Sezione Veneto, Padova (Italy), 2002.
- Dipartimento di Chimica, Università di Perugia (Italy), 2002.
- Politecnico di Milano, Milano (Italy), 2003.
- Institute of Inorganic Chemistry, University of Zürich (CH), 2003.
- Computational Science, Department of Chemistry and Applied Biosciences ETH Zurich USI-Campus, 2004.
- Università di Modena e Reggio Emilia, 2004.
- International Master in Nanotechnologies, CIVEN, Universities of Padua and Venice, Italy, 2004.
- Università di Parma, Dipartimento di Chimica Generale ed Inorganica, Parma, 2004.
- Scuola Normale Superiore di Pisa: XXXVIII Corso di Orientamento, 2004.
- Fotochimica dalle Alpi all'Etna (in onore Prof. Mazzucato), Perugia, 2004.
- Scuola Avanzata di Formazione Integrata, Università di Pavia, 2005.
- Scuola Normale Superiore, Pisa 2005.

- Nanotecnologia, Cronobie, Bologna, 2005.
- Dall'atomo all'uomo, Master Scienza e Fede, Ateneo Pontificio Regina Apostolorum, Roma, 2006.
- Inaugurazione dell'Anno Accademico della Facoltà di Scienze, Bologna, 2006.
- La Scienza e le scommesse del futuro, Unione Industriale, Torino, 2006.
- Bruno-Werdelmann Lecture, University of Essen, Germany, 2006.
- SPAIS: (Scuola permanente di aggiornamento per gli insegnanti di scienze): Le nanotecnologie e i nanomateriali, Caccamo (PA), 2006.
- Collegio Santa Caterina, Università di Pavia, 2007.
- Facoltà di Scienze, Università della Basilicata, Potenza, 2007.
- Università di Milano, Dipartimento di Chimica, giornata dell'orientamento, 2007.
- Basel Chemical Society, Basel, (CH), 2007.
- Centro Ricerche Donegani, Novara, 2007.
- Istituto Universitario di Studi Superiori, Università di Ferrara, Ferrara, 2007.
- Université Paul Sabatier - CNRS, Toulouse (France), 2007.
- Sezione Umbria della Società Chimica Italiana, Perugia, 2007.
- Il problema della complessità: dall'atomo all'uomo, Master Scienza e Fede, Ateneo Pontificio Regina Apostolorum, Roma, 2008.
- Energia: sfida ed opportunità, Festival delle Scienze, Roma, 2008.
- Galilean School of Higher Education, University of Padova, 2008
- Scuola di Dottorato in Scienza ed Alta Tecnologia, Università di Torino, Torino, 2008.
- Battaglia and Mulazzani Day, Area della ricerca CNR, Bologna, 2008.
- Accademia delle Scienze di Bologna Energia per l'astronave Terra, Bologna, 12 febbraio 2009.
- Seminari della Facoltà di filosofia: Il probema energetico. Università di Bologna, 17 febbraio 2009.
- GiovedìScienza: Il dedalo energetico. Torino, 19 febbraio 2009.
- III Worshop Fortlan Scienza nelle Scuole: Energia per l'astronave Terra, Univerrsità di Modena-Reggio Emilia, 2 aprile 2009.
- Spinner 2013, Lectio magistralis: Energia Oggi e domani: sfide e opportunità; Ravenna, 22 aprile 2009.
- Comunicare la Scienza, Polo di Rimini, Università di Bologna: Energia per l'astronave Terra; 27 aprile 2009.

- Scuola estiva La scienza al tempo della crisi, Agorà: "Energia: guardando da lontano, guardando lontano", Torino 8, luglio 2009.
- Convegno su "Fonti energetiche rinnovabili: il futuro e il passato tra scienza e storia della scienza, Ravenna, 25 settembre 2009.
- Workshop SIRR "Energia e radiazioni: quali prospettive per la ricerca", Napoli, 9 novembre 2009.
- Accademia dei Lincei: L'energia: il problema dei problemi, 11 dicembre 2009.
- Lezione Magistrale "Scienza e Creatività", Inaugurazione di Rinnova, Forlì, 9 gennaio 2010
- Dall'atomo all'uomo, Master Scienza e Fede, Ateneo Pontificio Regina Apostolorum, Roma, 12 gennaio 2010.
- Energia: il probema dei problemi, Colloqui "La Scienza Plurale", Università di Napoli, 24 febbraio 2010.
-Le machine molecolari, Dipartimento di Chimica, Università di Napoli, 24 febbraio 2010.
- Lectio Magistralis "Scienza e Creatività", l'Università di Bologna incontra Imola, 27 aprile 2010
- "Quale futuro per l'energia", Giornate Lincee della Chimica, Roma, 29 aprile 2010.
- "Scienza e creatività", 15° Anniversario del Dipartimento di Scienze, Università di Chieti, 4 maggio 2010.
- Energia: il problema dei problemi, EMBA VIII Global Trends Seminars, Alma Graduate School, Bologna, 7 maggio 2010.
- Dottorato in Scienze Chimiche, Università di Bologna: "Scienza e creatività", 17 maggio 2010.
- Il ruolo della scienza in un mondo fragile, iniziativa: Una settimana per il futuro dell'Università, Bologna, 30 settembre 2010.
- "Scienza e società"., Inaugurazione dell'AA della Scuola di Studi Superiori, Università di Torino, 3 novembre 2010.
- "Un'allenaza per custodire il pianeta Terra", Il Cortile dei Gentili, Università di Bologna, 12 febbraio 2011.
- "From Molecules to Molecular Devices and Machines", Center for Nanoscience and Technology, IIT, Politecnico di Milano, February 17, 2011.
-"La sfida energetica: come vincerla?", Congresso EnergiApea della Provincia di Bologna, GreenSocialFestival Bologna, 10 marzo 2011.

- “Custodire il pianeta Terra”, Riflessioni su Scienza e Società, Università di Bologna, 10 marzo 2011.
- “Dalle molecole alle machine molecolari”, Laboratori HERA, Forlì, 9 maggio 2011.
-“ Chimica e … parole e numeri”, Anno Intternazionale della Chimica, Università di Bologna, 8 giugno 2011.
- “La sfida dell’informatica molecolare”, Anno Intternazionale della Chimica, Scuola Normale Superiore, Pisa, 10 giugno 2011.
- “L’arte di Innovare. L’innovazione responsabile”, Forlì, 10 settembre 2011.
- “Un chimico dentro e fuori dal laboratorio”, XIV Convegno di Storia e Fondamenti della Chimica, Rimini, 22 settembre 2011
- “Scienza e creatività”, Lectio Magistralis per l’Anno Internazionale della Chimica e la Notte dei Ricercatori, Bologna, 23 settembre 2011.
- “Scienza, Chimica e Creatività”, Premio Internazionale Galileo Galielei dei Rotary Club Italiani, Pisa, 1 ottobre 2011.
- “Il problema dei problemi: l’energia”, Anno Internazionale della Chimica, Università del Piemonte, Torino, 12 ottobre 2011.
- “Energia per l’astronave Terra”, Istituto Universitario di Studi Superiori, Università di Ferrara, Ferrara, 20 ottobre 2011.
- “Dall’Atomo all’Uomo. La complessità dalla chimica alla biologia”, Master “Scienza e Fede”, Ateneo Pontificio “Regina Apostolorum”, 17 gennaio 2012.
- “La Creazione, la Storia dell’Universo, l’Astronave Terra”, Corso interdisciplinare Riflessioni su Scienza e Società, Università di Bologna, 8 marzo 2012.
- “Il problema dei problemi. L’energia”, Scuola Galileiana di Studi Superiori, Università di Padova, 28 marzo 2012.
- “Il Cortile dei Gentili: Credenti e non credenti di fronte al mondo d’oggi” Club G. Dossetti, Crevalcore, 29 marzo 2012
- “Quale futuro per l’energia?” Università della Terza Eta’, Cesena, 25 maggio 2012.
24esimo Anno Accademico
- “Il pianeta Terra ha un futuro o lo stiamo inesorabilmente depauperando?”, Accademia dei Benigni, Bertinoro, 22 settembre 2012.
- “Energia, il problema dei problemi”, Istituto Lombardo Accademia delle Scienze e Lettere, Milano, 29 novembre 2012.
- “Reinventare il fuoco”, Ciclo di conferenze Il mondo in cui viviamo, Scuola rurale, Crevalcore, 20 gennaio 2013

- “Energia: il problema dei problemi”, Istituto LombardoAccademia delle Scienze e Lettere, Milano, 18 aprile 2013
- “Il ruolo della Scienza in un Mondo fragile”, Università della Terza Eta’, Cesena, 26 aprile 2013.
- “Energia per un Mondo sostenibile”, Corso di aggiornamento insegnanti, Università di Bologna, 11 maggio 2013
- “Sostenibilità ambientale, nuovi stili di vita, nuove opportunità, nuova crescita economica”, L, innovazione Responsabile, Forlì, 17 maggio 2013.
- “Sostenibilità energetica ed ambiente”, Servizio Sanitario Regionale, Istituto Ortopedico Rizzoli di Bologna, 21 maggio 2013.
- “Energia per l’Astronave Terra: La soluzione del problema energetico come fattore cruciale nella società del futuro”, FARETE, Unindustria Bologna, 16 settembre 2013.
- “Sostenibilità energetica ed ambientale”, Sostenibilità ambientale e uso razionale dell’energia in sanità, Istituto Rizzoli, Bologna, 8 ottobre 2013.
- “Energia: la grande sfida del XXI secolo”, Bergamo Scienza, 6 ottobre 2013.
- “Insegnare all’università: un mestiere diverso”, Tavola del Dialogo, Vescovado, Pavia, 30 ottobre 2013
- “Energia. Quali i limiti e le sfide tecnologiche”, Accademia dei Lincei, Programma di formazione insegnanti, Bologna, 4 dicembre 2013
- “Dall’Atomo all’Uomo. La complessità dalla chimica alla biologia”, Master “Scienza e Fede”, Ateneo Pontificio “Regina Apostolorum”, 10 dicembre 2013.
- “Il ruolo dello scienziato in un mondo fragile”, Università di Roma III, 27 febbraio 2014.
- “La libertà dei limiti”, i Martedì di San Domenico, Bologna, 11 marzo 2014.
- “Scienza, Chimica e Creatività”, festival della Scienza, Forlì, 5 aprile 2014.
- “Le risorse del pianeta Terra”, Università della Terza Eta’, Cesena, 29 aprile 2014.
- “Giacomo Ciamician:uno scienziato oltre i confini del suo tempo”, Riflessioni su Scienza e società, Bologna, 13 maggio 2014.
- “Il problema energetico: sostenibilità ed equità”, ciclo di conferenze su “Il mondo nuovo dell’antropocene”, Bologna, 19 novembre 2014.
- “Il mondo nuovo dell’antropocene”, Scuola Rurale su “Alleanza e conflitto fra uomo e natura”, Crevalcore, 1 marzo 2015.
- “Chimica! Leggere e scrivere il libro della Natura”, Università della Terza Eta’, Cesena, 24 aprile 2015.

- “Sull’astronave Terra con papa Francesco”, Festival Francescano 2015, bologna, 26 settembre 2015.
- “Ambiente: oltre l’ecologia”, i Martedì di San Domenico, Bologna, 20 ottobre 2015.
- “Energia per un mondo sostenibile”, in “Laudata Energia”, settimana dell’Università, Bologna, 19 novembre 2015.