

CLAUDIO LUCHINAT

Curriculum vitae

(2019)

Address

University of Florence: Center of Magnetic Resonance, Via Luigi Sacconi, 6,
50019, Sesto Fiorentino, Florence, Italy

Date of birth

February 15, 1952

Doctorate

Chemistry 110/110 cum laude, March 1976

Positions held

Post-doc, University of Florence, 1976-1978;

Recipient of a CNR research grant, University of Florence, 1978-1981;

Tenure researcher, University of Florence, 1981-1986 (Faculty of Pharmacy and Faculty of Sciences);

Full professor of General and Inorganic Chemistry, Faculty of Agricultural Sciences, University of Bologna, 1986-1996; University of Florence, 1996-present.

Honors and Offices

Co-founder and Director of the Magnetic Resonance Center of the University of Florence (CERM); co-founder and present President and Director of the Interuniversity Consortium on Magnetic Resonance of Metalloproteins (CIRMMP); co-founder of the spin-off ProtEra; co-founder and President of the Scientific Committee of the no-profit research organization Fiorgen and of the spin-off Giotto Biotech S.r.l.

IBM visiting scientist, T.J. Watson Research Center, Yorktown Heights, N.Y., 1981, 1983, 1984, 1986. Visiting professor, State University of New York, Plattsburgh, 1982. Regional representative of the Italian Association of Inorganic Chemistry, 1983-1985. Recipient of a J.S.P.S. (Japanese Society for the Promotion of Science) fellowship as visiting professor, 1987. Member of the National Committee of the Magnetic Resonance Discussion Group, 1987-1989 and 1989-1991. Visiting Professor for the "Troisième Cycle" at the Universities of Genève and Lausanne, 1988. Visiting scientist at the California Institute of Technology, 1988. Member of a CNR committee for the selection of CNR Research Directors, 1992 and 2009. Visiting Professor at the University of Ioannina, 1993. Member of the Board of Directors for the Interuniversity Consortia INCA (1994-1998) and CIRMMP, 1995 -. Member of Progetto Finalizzato CNR Committees, 1995. SBIC-lecturer at the Metal Ions in Biology Conference, Ventura, 1998. Visiting Professor for the "Troisième Cycle" at the Universities of Genève and Lausanne,

1999. External member of PhD juries at the Universities of Stockholm (1994) and Mons-Heinaut (2001), of CNRS promotion committees (Paris, 2007 and Lyon, 2009), and of the French AERES research assessment panels (2009). Coordinator of an international Doctorate School in Structural Biology in collaboration with the Universities of Frankfurt and Utrecht (2001-present). Scientific Coordinator or Principal Investigator in European research projects since Framework Programme III.

Member of the External Advisory Board of the SEEDRUG Biomolecular NMR Facility of the University of Patras (2012-); Member of the Supervisory Board of the Paramagnetic NMR Facility of the Leiden University (2013-); Associate member of ICCOM-CNR (2014-); Member of the Scientific Committee of the French High Field NMR Research Infrastructure (IR-RMN-THC)(2014-); Coordinator of the Expert Center for Metabolomics" (EXCEMET) (2014-); President of the European Economic Interest Group EuroBioNMR-EEIG (2016-); Member of the International Scientific Advisory Board of The Metabolomic Innovation Centre (TMIC), Edmonton, Alberta (CA) (2016-); Member of the External Advisory Board of HWB-NMR of the University of Birmingham (2017-).

Recipient of the "*Raffaello Nasini*" gold medal award for Inorganic Chemistry of the Italian Chemical Society, 1989. Recipient of the Federchimica Award "For an Intelligent Future", 1994. Recipient of the 1996 European Medal for Biological Inorganic Chemistry, awarded by the Society of Biological Inorganic Chemistry. Recipient of the 2001 "*GIDRM gold medal for magnetic resonance*". Nominated *ISMAR Fellow* in 2016. Recipient of the Premio Sapio 2017 and of the prestigious Richard R. Ernst Prize in Magnetic Resonance 2018.

Society Memberships

Italian Chemical Society (Inorganic Chemistry division, Chemistry Teaching division, Division of Chemistry of Biological Systems and Processes, Interdivisionary Group of Magnetic Resonance), Italian Association of Inorganic Chemistry (for as long as this body existed), Magnetic Resonance Discussion Group, International Society of Magnetic Resonance, American Chemical Society, International Society of Magnetic Resonance, New York Academy of Sciences, American Association for the Advancement of Science, European Environmental Research Organization, Society of Biological Inorganic Chemistry.

Editorships and Editorial Boards

Coeditor with I. Bertini and R.S. Drago of *Coordination Chemistry of Metalloenzymes*, Reidel, 1983; coeditor with I. Bertini, W. Maret and M. Zeppezauer of *Zinc Enzymes*, Birkhäuser, Boston, 1986; coeditor with G. Parigi and E. Ravera of "*Paramagnetism in Experimental Biomolecular NMR*", RSC, 2018.

Involvement in scientific journals

Member of the Editorial Board of "*Gazzetta Chimica Italiana*", from 1991 to its merging into the "*European Journal of Inorganic Chemistry*", 1997, of the *Journal of Magnetic Resonance*, 2010-2016, of the "*Journal of Biomolecular NMR*", 2002-present, and of the "*Journal of Biological Inorganic Chemistry*", 1995-2003.

Co-editor of the "*Journal of Biological Inorganic Chemistry*", 2004-present.

Organization of Congresses

NATO School on "*Coordination Chemistry of Metalloenzymes*", San Miniato, 1982; "*1st Chianti Workshop on Magnetic Resonance*", San Miniato, 1984; "*International Workshop on Zinc Enzymes*",

San Miniato, 1985; workshop on "Genetic Physico-Chemical Approaches for Analysis of Biological Catalysts", Florence, 1986; "Frontiers of the Chemistry of Metal Ions Approaching the Year 2000", Florence, 1990; "4th Chianti Workshop on Magnetic Resonance", San Miniato, 1991; "6th Chianti Workshop on Magnetic Resonance", San Miniato, 1995; 10th International Conference on Bioinorganic Chemistry, Florence, 2001. Co-chair of the World-wide Conference on Magnetic Resonance, Florence, 2010.

Member of the Organizing Committee of

the "1st International Conference of Bioinorganic Chemistry", Florence, 1983; "2nd Chianti Workshop on Magnetic Resonance", San Miniato, 1987; "3rd Chianti Workshop on Magnetic Resonance", San Miniato, 1989; ; "Bioinorganic and Biotechnological Aspects of Environmental Chemistry", Florence, 1992; "5th Chianti Workshop on Magnetic Resonance", San Miniato, 1993; International Conference on Carbon Dioxide Utilization, Bari, 1993; "7th Chianti Workshop on Magnetic Resonance", San Miniato, 1997; XXXIII International Conference on Coordination Chemistry, Florence, 1998; "8th Chianti Workshop on Magnetic Resonance", San Miniato, 1999; "9th Chianti Workshop on Magnetic Resonance", Tirrenia, 2001; 10th Chianti Workshop on Magnetic Resonance, San Miniato, 2003; 2nd Conference on Field Cycling NMR Relaxometry, Turin, 2001; 11th Chianti Workshop on Magnetic Resonance, Vallombrosa, 2007; "12th Chianti/INSTRUCT Workshop on BioNMR", Montecatini Terme, 2012; EMBO workshop on Magnetic Resonance for Cellular Structural Biology, Principina Terra (Grosseto) Italy 2014; "14th Chianti/INSTRUCT Workshop on BioNMR", Principina Terra (Grosseto) Italy , 2016

Scientific Activity

He is the author of over 600 publications, written in English, in scientific journals of international renown. Together with S. Aime and G. Valensin he is the author of the book (in Italian): "NMR Spectroscopy: Applications in Inorganic and Bioinorganic Chemistry, Italian Association of Inorganic Chemistry", 1984. Together with I. Bertini he is the author of the book: "NMR of Paramagnetic Molecules in Biological Systems", Benjamin-Cummings, 1986. Together with I. Bertini and L. Banci he is the author of the book: "Nuclear and Electron Relaxation", VCH, 1991. Together with I. Bertini he is the author of the book: "NMR of Paramagnetic Substances", Elsevier, 1996. Together with I. Bertini and G. Parigi he is the author of the book "Solution NMR of Paramagnetic Molecules", Elsevier, 2001. Together with I. Bertini, G. Parigi and E. Ravera he is the author of the book "NMR of Paramagnetic Molecules", Elsevier, 2017.

His h-index is 80 (Scholar), and his papers have been cited more than 26.000 times.

He has been invited to hold seminars in a number of prestigious universities and research institutions worldwide, and plenary lectures in many International Workshops, Symposia and Conferences.

His research interests include bioinorganic chemistry, structural biology, development of NMR-based structural methodologies in solution and in the solid state, metalloproteins and metalloenzymes, spectroscopy, theory of electron and nuclear relaxation, NMR of paramagnetic species, relaxometry, contrast agents and NMR-based analytical methods in general. Particularly worth mentioning are his recent studies on the integration of structural techniques, where he has shown that simultaneous refinement of X-ray and NMR data can lead to i) a significant increase of accuracy of the resulting structural data and ii) a robust strategy to assess if structural differences exist for a biomolecule between solution and crystalline state. He has also significantly contributed to the theoretical understanding of the phenomenon of Dynamic Nuclear Polarization (DNP), both in solids

and in liquids. DNP is a promising strategy to enhance the sensitivity of the NMR experiment, possibly transforming NMR into a completely new technique for the investigation of biological systems in ways that would have been unconceivable only a few years ago.

Starting from 2008, his research has been also directed towards metabolomics, aiming at obtaining the metabolic profiles of biological fluids such as urines and blood using NMR spectroscopy; defining procedures for sample preparation and for the acquisition of NMR spectra; developing statistical methods for the analysis of the data; and correlating the metabolic profiles with pathophysiological characteristics of the subjects studied. The results of this research, published in international journals, have been cited several times not only in specialized literature but also in other sectors, in books, websites and also in non-specialist press. Claudio Luchinat has become one of the international reference points for metabolomics, and is invited to give plenary lectures on the topic at conferences both specialized and in other sectors. He is invited as a keynote speaker from research laboratories in various countries around the world, and invited to inaugurate new research centers and research infrastructures.