

Ivano Bertini (1940–2012)

Professor Ivano Bertini passed away in Florence on July 7, 2012 at the age of 71. He was at the crossroads of many scientific communities, from his “home” community, inorganic chemistry, to chemistry in general, bioinorganic chemistry, which he pioneered, structural biology and, last but not least, nuclear magnetic resonance. The many messages of condolence that we, his pupils, colleagues, and friends, have received in the last weeks bear witness to the fact that each of these communities mourn the loss of a truly inspiring figure in many aspects of life, both scientific, and nonscientific.

Ivano Bertini was born in 1940 in Pisa, Italy. He studied chemistry and spent his entire career at the University of Florence, where he was Professor of General and Inorganic Chemistry from 1975 until his retirement in 2011. His career was characterized by the use of fundamental chemical knowledge to advance frontiers in chemistry and biology, often exploiting interdisciplinary approaches. Bertini began his career by publishing three highly cited papers on the use of infrared spectroscopy to recognize the metal binding mode of NCS^- and NCSe^- . He then contributed to the success of the Florence coordination chemistry school, led by his maestro Luigi Sacconi, through the characterization of new coordination compounds by using electronic spectroscopy, NMR, EPR, and theoretical chemistry. He began his adventures with metal ions in biology after a visit to Harry Gray at Caltech (USA) in 1974 by studying (with the author of this Obituary as his student) metal-substituted zinc enzymes, and then hemoproteins, copper proteins, and FeS proteins, thus contributing to the understanding of their structure–function relationships. He advanced NMR spectroscopic methodologies to study paramagnetic metalloproteins, and provided the theory for the field dependence of nuclear relaxation caused by paramagnetic centers. Bertini soon established himself as a world authority in NMR spectroscopy of paramagnetic molecules. Not surprisingly, his lab was the first to succeed in determining the solution structure of metalloproteins containing paramagnetic ions. The first use of NMR spectroscopy to determine the solution structure of a protein had been reported in 1985 by Kurt Wüthrich, but it was believed that the solution structure of paramagnetic proteins could not be achieved. Bertini showed that most of the limitations imposed by paramagnetic ions could be overcome, and that paramagnetic effects could actually be profitably exploited, and published the first (of many) structures of this type in 1994. From then on, the understanding of metalloprotein function could also rely on solution structures. The blossoming of structural genomics studies world-

wide in the early 2000s saw his lab included in the SPINE and SPINE2 European projects. In 1994, he founded an interuniversity consortium, CIRMMP, which began providing EC-funded transnational access to European researchers, and in 1999, he founded the Center of Magnetic Resonance (CERM) at the University of Florence. Through many European collaborative projects, he acquired protein production technologies for the pursuit of specific biochemical subjects such as metal homeostasis, metal trafficking in cells, mitochondrial chemistry, and metal-based signaling. He solved over 150 protein solution structures, including the structures of transient protein–protein complexes. CERM/CIRMMP is now one of the seven core facilities of the “Integrated Structural Biology Infrastructure” INSTRUCT.

Bertini was at the official signing of the INSTRUCT agreement in Brussels last February, just a few days before being diagnosed with lung cancer, and was scientifically active until a few days before his death.

Bertini had a strong personality, was a “locomotive”, and a fighter. He was always very generous in making his knowledge, energy, and exceptional organizational skills available to the scientific community. He was the initiator of the International Conferences on Bioinorganic Chemistry, cofounder of the Society of Biological Inorganic Chemistry and of its journal, coordinator of the European consortium that presently offers access to NMR facilities, and organizer of large conferences on coordination chemistry and on magnetic resonance. Besides being the founder of CERM and CIRMMP, he was the founder and the soul of the nonprofit research organization Fiorgen and the founder and president of the university spin-off Giotto Biotech.

Bertini’s influence was felt by both the international scientific community and by the many younger researchers whom he advised. His impact on the scientific community was huge. He was the recipient of two honoris causa degrees in chemistry and one in biology, as well as many other awards, and a member of the Accademia dei Lincei. He was a prolific author who published over 650 articles in peer-reviewed journals and several books, among which *Solution NMR of Paramagnetic Molecules* (with C. Luchinat and G. Parigi), *Biological Inorganic Chemistry* (with H.B. Gray, E. Stiefel, and J. Valentine), and the *Handbook of Metalloproteins* (with A. and H. Sigel) are very popular. Ivano Bertini will be greatly missed by the scientific community.

Claudio Luchinat

University of Florence

DOI: 10.1002/anie.201205977



Ivano Bertini

