

XX<sup>th</sup> Italian-Spanish Congress on  
Thermodynamics of Metal Complexes  
7<sup>th</sup>-11<sup>th</sup> June, 2009 - Pisa - Italy



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## ISMEC 2009

*Created by a number of researchers interested in studies on metal complex formation, nowadays ISMEC it is focused on different aspects of analytical chemistry, physical chemistry, bioinorganic chemistry, biochemistry and environmental chemistry. The Congress mainly purposes to provide a valuable forum for discussion on recent advances on the above mentioned topics.*

The XX Italian-Spanish Congress of Thermodynamics of Metal Complexes (ISMEC2009) has been celebrated in Tirrenia (Pisa) between the 7<sup>th</sup> and 11<sup>th</sup> of June. This international Congress has been attended by about hundred scientists coming from different parts of the world. Five plenary lectures were delivered by famous scientists, as V. Balzani from the University of Bologna (Molecular machines and devices), M.P. Colombini from the University of Pisa (Macromolecules in art and archaeology), B. Meunier from the University of Toulouse (The role of metal ions in the Alzheimer disease: what can we do?), T. Jovin from Max Planck Institute for Biophysical Chemistry of Goettingen (Between quantum dots and the cell: spectroscopic and imaging studies in Parkinson's disease) and A. Lopez Quintela from the University of Santiago de Compostela (Toward atomic resolution in colloidal science: soft synthesis of atomic clusters). The participants, had as well the opportunity of assisting to more than 30 oral presentations and an equal number of poster communications dealing with a variety of topics centred on metal complexes. The contributions, from scientists coming from different countries, were all of great interest and have guaranteed the success of the meeting. ISMEC2009 also corresponds to the 36th Annual Meeting of the members of the Italian Group of Thermodynamics of Complexes.

The "Group of Thermodynamics of Complexes" (GTC) was founded in Italy in 1973 mainly with the aim of preserving the heritage of experiences embracing thermodynamics and kinetics of coordination compounds, both those already collected, and those yet to be attained. It is not the purpose of this report to outline the fascinating history of the complexes, but some words should be spent to illustrate the important consequences that uses and applications of coordination compounds have produced in the world of chemistry and related technologies.

The name "complex" was introduced by A. Werner in 1893 to denote a class of compounds whose structures exhibited a given number of molecules (ligands) coordinated around a metal centre. Since then, an

enormous amount of work, where complexes played a central role, have been performed over the world by the community of chemists. In particular, precious contributions to the thermodynamics of reactions of complexes were given in the Fifties by the schools of Bjerrum, Biedermann, Sillén and Schwarzenbach, the latter having developed the EDTA titrations, one of the most popular applications of analytical chemistry. At the same time, other scientists as Basolo, Pearson, Wilkins and Taube who elucidated the intimate mechanism of electron transfer between complexes, addressed themselves to the study of the kinetics of reactions involving complexes, aimed to enlighten the mechanism of ligand substitution at the metal centre. However it was only in 1962 that the general mechanism of ligand binding to metal ions was worked out by Manfred Eigen and his group at Goettingen thanks to the recently developed relaxation techniques. This period of intense and fruitful research opened wide perspectives on the use of complexes in organic chemistry, electrochemistry, analytical chemistry, biochemistry, pharmacology and industrial chemistry. Catalysis, metal extraction, biotechnologies, radiodiagnostics and radiotherapeutics,



and medicinal chemistry do constitute the areas of application of coordination compounds that have provided a major impact on the needs of the society. It is reasonable to assess that further research on coordination compounds will lead to further knowledge of the interpretations and applications involving chemistry as a whole. This support is principally provided by the thermodynamic and kinetic studies of the complexes in solution. It was with the purpose of contributing to further studies in this field, requiring deep commitment and engagement, that the Group of Thermodynamics of the Complexes, was created by a number of researchers from different Italian universities.

Distinguished by the qualified experience of its members, the Group has attained important international recognition, without being bound by the bureaucracy of statutes or rigorous regulations. GTC has had the resolution and the tenacity to remain operational for the last 36 years. GTC each year is seeking confrontation in a Congress, having found interests and met challenges that go well beyond any barriers that may exist between various academic fields. This is confirmed, on the one hand, by its constant, friendly and fruitful relationship with the foreign colleagues, and, on the other, by the high number of publications of its members. The main policy of GTC is to foster and intensify basic research by the setting up of 'Summer Schools', which are held with the purpose of providing constant updating through didactics, since, as Luigi Sacconi, one of the most eminent scientists involved in the chemistry of complexes, said: 'The aim of fundamental research is, mainly, to understand'.

As mentioned above, several Spanish fellows, who were in contact with the GTC members, started to attend the meeting until when, in 1989, the two streams, Italian and Spanish, merged giving rise to a non official, but nevertheless well concrete and active Italian-Spanish group and, since then, the meeting is being celebrated, at alternate years, in Italy ad Spain.

The purpose of the Italian-Spanish Congress on Thermodynamics of Complexes is to continue and extend the interest in the fields of knowledge cultivated by the scholars of GTC. Nowadays the areas of research represented in the ISMEC meetings are widely extended, embracing, beside the traditional area of thermodynamics, also the fields of kinetics, synthesis, environment, nanoparticles and biochemistry with some incursion in the world of molecular biology.

Parallel to the widening of the disciplines involved, also the number of attendants of nationality different from the original Italian and Spanish is extending. So, ISMEC is now enjoying the constant participation of colleagues from Algeria, Bulgaria, France, Germany, England, Hungary, Poland, Portugal, South Africa, Switzerland, Turkey and Venezuela. Also, the number of PhD students and of young scientists attending the meeting has remarkably increased in the last years. All this is motive of great satisfaction and does constitute a promise of long life for the group.

The Annual Congress at present configures itself as an useful forum offering a favourable ground for production and discussion of new ideas where the youngest of the participants play an important role. In this context, a session of the Congress is devoted to the Fernando Pulidori Prize to be awarded to distinguished young researchers.



## Fernando Pulidori

Nato a Ferrara il 26 giugno 1928, Fernando Pulidori si è laureato in Chimica pura a Ferrara nel 1958 a pieni voti, lavorando nel contempo presso un'azienda alimentare, per mantenersi agli studi. Conseguita l'abilitazione all'esercizio di chimico ha immediatamente iniziato la sua attività di ricerca presso l'Istituto

Chimico dell'Università di Ferrara in qualità di borsista CNR. È stato assistente incaricato prima e volontario poi alla cattedra di Chimica Generale dal 1958 al 1965. In seguito a pubblico concorso è diventato assistente ordinario alla cattedra di Chimica-Fisica nel 1965 e quindi aiuto alla stessa cattedra nel 1976. Ha conseguito abilitazione alla Libera Docenza di Chimica-Fisica nel 1968 e successiva conferma nel 1973. Durante questi anni ha tenuto parecchi insegnamenti, quali Chimica per i Corsi di Laurea in Ingegneria e in Fisica, Esercitazioni di Preparazioni Chimiche, Chimica Industriale, Esercitazioni di Chimica-Fisica e Chimica-Fisica II per il Corso di Laurea in Chimica. Nel 1981 è diventato professore ordinario di ruolo di Analisi Chimica Strumentale, incarico che ha ricoperto fino al suo pensionamento, nel 2000. Anche in seguito al suo ritiro, ha continuato a contribuire alla didattica della Chimica come professore a contratto gratuito. Si è spento il 30 gennaio 2007, dopo lunga malattia.

Per molti anni membro del Consiglio di Amministrazione dell'Ate-neo ferrarese, è stato Presidente del Corso di Laurea in Chimica e Direttore del Dipartimento di Chimica, nonché Presidente dell'Ordine dei Chimici della Provincia di Ferrara. È stato membro del Consiglio direttivo dell'AICAT (Associazione Italiana di Calorimetria e Analisi Termica) e della Divisione di Chimica Analitica della Società Chimica Italiana (SCI), nonché presidente del Gruppo di Termodinamica dei Complessi della SCI.

La sua attività scientifica è stata multiforme e testimoniata da decine di pubblicazioni di rilievo internazionale, nell'area della Chimica-Fisica e della Chimica Analitica, su argomenti quali:

- momenti di dipolo in solventi apolari;
- corrosione ed inibitori di corrosione del ferro;
- adsorbimento di sostanze organiche su interfacce polarizzate;
- struttura del doppio strato elettrico;
- meccanismi di elettro-riduzione di sostanze organiche di interesse ambientale;
- studio di equilibri di complesso-formazione in soluzione tra ioni metallici e leganti di interesse biologico a basso peso molecolare;
- effetti stereoselettivi nella formazione di complessi metallici e loro applicazioni alla risoluzione di miscele enantiomeriche.

Ha organizzato diversi convegni, fra cui il IX Congresso del Gruppo di Termodinamica dei Complessi, tenutosi a Ferrara nel giugno 1982.

Scienziato di profonda cultura chimica e ricercatore accurato e meticoloso colpiva per i suoi modi gentili e per la facilità con cui riusciva ad allacciare rapporti di serena collaborazione con colleghi e collaboratori. Rappresentava per tutti un sicuro riferimento per il suo equilibrio e per la sua pacatezza nella ricerca delle soluzioni ai problemi.