Renato Seeber
Professor of Analytical Chemistry
Department of Chemistry
Università di Modena and Reggio Emilia

Degree in Chemistry *cum laude* at *Università di Padova*.

Grant for 2 years at *Università di Padova*.

Lecturer, *since 1976,* of *Electrochemistry, General and Inorganic Chemistry, Applied Chemistry, Analytical Chemistry* at the *Università di Camerino* and, subsequently, *Università di Siena (Faculty of Mathematical, Physical and Natural Sciences)*.

Associate Professor of *Analytical Chemistry* **since 1980**, at the *Università di Siena (Faculty of Mathematical, Physical and Natural Sciences)*. Also Responsible for Courses in *Numerical Analysis*.

Full Professor of *Instrumental Chemical Analysis* **since 1986**, at the *Università di Sassari (Faculty of Mathematical, Physical and Natural Sciences)*. Also Responsible of Courses in *Clinical Analytical Chemistry* and in *Electrochemistry*.

Visiting Professor at the Department of Chemistry – *University of Cincinnati* (Prof. W.R.Heineman) – 1988 and 1991

Full Professor of Analytical Chemistry at the *Università di Bologna (Faculty of Industrial Chemistry)* since 1993. Also Responsible of Courses in *Laboratory of Analytical Chemistry*, *Laboratory of Instrumental Chemical Analysis*, *Analytical Methods in Industrial Chemistry*, *Analytical Chemistry of Pollutants*. Also courses of *Analytical Chemistry* at the *Faculty of Agronomy* of the same University

Full Professor of Analytical Chemistry (Faculty of Mathematical, Physical and Natural Sciences) at the *Università di Modena e Reggio Emilia* since 1998.

Member of the Commission for foundation of the *Faculty of Agronomy* in Reggio Emilia

Responsible for Degree's and Doctorate's Theses in Italy, PR China and Romania.

Member of Commissions for Doctorate in Italy, Spain and Finland.

Member of commissions in competitions for becoming Full Professor, Associate Professor and Researcher of Analytical Chemistry.

Member of many commissions of the Faculty and of the University, in Siena, Sassari, Bologna and Modena e Reggio Emilia.

Organiser of national and international meetings and schools.

Invited Lecturer at national and international meetings and workshops.

Evaluator and ***Rapporteur*** in Marie Curie actions (6FP and 7FP): RTN, EIF, IIF, OIF and ITN.

Peer Reviewer for Italian and other European National Programmes of Research.

Member *of the Editorial Board* of *Chemical Sensors* (Elsevier) and of the International Advisory Board of *Analytical and Bioanalytical Chemistry* (Springer), the European journal in Analytical Chemistry of the European chemical societies.

Reviewer for international publications in many different fields of Chemistry, such as Analytical, Inorganic, Physical, Food, Material and Surface Chemistry.

Among other additional didactic and research assignments, he was Member of the *Scientific Council of* the *Institut of Inorganic and Surface Chemistry* (CNR - Padova), Coordinator of the *Council for Degree in Chemistry*, *Member of Senato Accademico Integrato*, *Università di Sassari*, for the formulation of *Statuto dell'Ateneo*, in the frame of the new system of self-government of the universities.

Past ***Italian Representative*** at the **International Society of Electrochemistry** – ISE.

Member *of the Area Panel 'Chemistry'* for the evaluation of the 24 institute of CNR all over Italy.

Member *of the Conference Panel of SPIE at SPIE Europe meetings in Security and Defence.*

Co-Editor of *Special Issues* of the journals *Analytical and Bioanalytical Chemistry*, *Sensors* and *Electrochimica Acta.*

At the moment, he is ***Member*** of the *Direttivo Divisione di Chimica Analitica - Società Chimica Italiana and of the Steering Committee of AISEM* and ***Coordinator*** of the *Group Sensori* of the *Società Chimica Italiana*.

Co-author of more than 200 scientific publications on international journals, of chapters of books and of one monograph within a series.

Main scientific interests

Shortly:
Analytical Chemistry, especially using electrochemical methods, especially applied to food matrices:
- development of new devices - based on new materials - and procedures;
- application on food and environmental matrices;
- elaboration of the results obtained by conventional and novel statistical methods.

In details:

I Modified Electrodes

Ia *Surfaces (electrodes) modified with Conducting Polymers and Composites*

Ia1 *Electrochemical polymerisation of both originally synthesised and commercial tiophenes*

Ia2 *Surfaces (electrodes) modified with SAMs*
Ordered and les ordered SAMs consisting of thioalkyls bearing nanoparticles of gold (eletrocatalysis).

Ib *Characterisation of modified surfaces (electrodes)* by electrochemical and electrogravimetric techniques, by spectroelectrochemistry in the UV-visible-NIR region, by surface spectroscopies, and by conventional analytical techniques;
- *modification* of surfaces of (ultra)*microelectrodes*;
- *'insertion' of metal ions into the polymer (polythiophenes)* by suitable modification of the structural unit, i.e., of the monomer, or of the pre-formed polymer;
- *inclusion of metal nanoparticles into polymeric matrices*, even by *layer-by-layer* deposition technique,
- *graphene modified electrodes* - electrocatalysis

Ic *Characterisation of the different surface coatings by spectroscopic and microscopic techniques. In situ characterisations are performed under polarisation.*

Id *Modified electrodes and microelectrodes as sensors for 'electronic tongues'*

II Chemometrics

Development of new chemometric (numerical statistical) *algorithms* for signal analysis (*wavelet analysis*). Applications of even conventional signal filtering and chemometric techniques.

In the past:

- molecular electrochemistry of organic and inorganic (coordination and organometallic) compounds;
- development of original methods for *simulation of electrochemical responses* by
    - *finite difference methods*
    - *convolution and deconvolution techniques*
- thermodynamics and kinetic aspects of the *transport of nutrients in soil* and *through root membrane*

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