

Curriculum Vitae

INFORMAZIONI PERSONALI

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AMBITI DI RICERCA

Curriculum Vitae of

Monica Santamaria

PERSONAL DATA

Birth: 30/11/1973 in Licata (Italy)

Nationality: Italian

Marital status: Married, 2 kids

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EDUCATION

Jan 1998 - Feb 2001 Ph.D. in Electrochemical Engineering, at Politecnico di Milano.

Oct 1991 - Apr 1997 Master degree in Chemical Engineering at Chemical Engineering Department of Università degli Studi di Palermo, achieved with mark 110/110 cum laude.

July 1991 Classical Leaving Certificate (high school) achieved with mark 60/60 cum laude, at "Liceo Classico V. Linares - Licata".

APPOINTMENTS

Dec 2010 - present Professor of Electrochemical energy conversion and storage at Università degli Studi di Palermo

HONOURS AND AWARDS

- June 2002 Invited lecture at POLITEHNICA of Bucharest (Romania) on "*Photocurrent Spectroscopy applied to the characterization of passive films on metals and alloys*".
- July 2006 Hans-Jürgen Engell Prize 2006, awarded by the International Society of Electrochemistry "*for her excellent work in the characterization of anodic oxide films as a function of their degree of hydration by photocurrent spectroscopy and electrochemical impedance spectroscopy, and the development of a model describing the electronic properties of amorphous semiconductor/electrolyte junctions*".
- March 2009 Invited lecture at the Faculty of Chemistry of Università di Palermo (Italy) on "*Electrochemical Material Science: challenges and perspectives*".
- September 2010 Invited lecture during E-MRS 2010 Fall Meeting, September 13-17, 2010, Warsaw, Poland on "*Photocurrent Spectroscopy Applied to the Characterization of Compositionally and Structurally Graded Materials: from Thin Films to Nanostructures*".
- September 2010 Invited lecture during The 61st annual meeting of International Society of Electrochemistry, Nice (France) September 26th - October 1st, 2010. on "*The Influence of Surface Treatment on the Kinetic of Growth of Anodic Films on Magnesium in Alkaline Solution*".

MAIN RESEARCH INTERESTS

Her fields of scientific interests were established largely during doctoral work and included growth and physico-chemical characterization of anodic films on valve metals and valve metal alloys as well as of coatings for corrosion and wear protection. Their electronic and solid state properties (band gap, flat band potential, conductivity type) have been investigated by non-destructive methods, based on a.c. electrochemical impedance spectroscopy and photocurrent spectroscopy. The research was also supported by relevant electron-optical techniques (scanning electron microscopy and transmission electron microscopy). Extensive international collaborations exist with Japan, Europe, North America institutions, enabling wider aspect of films properties to be examined.

The expertise on the fabrication of anodic films has been used for the fabrication of hybrid inorganic/organic (conducting polymers) junctions to be used in electronic components.

More recently, research efforts have been devoted to the growth and characterization of inorganic 1D nanostructures of technological interest via a template assisted electrogeneration of base and/or via anodizing.

The long time devoted to the photoelectrochemical characterization of passive films and nanostructured materials allowed to estimate the band gap of several oxides, mixed oxides and hydroxides, which contributed to prove and better define a correlation between the band gap of passive films and the difference of electronegativity of their constituents, making photocurrent spectroscopy a powerful technique able to give quantitative information on their composition.

TEACHING EXPERIENCE

September 2010 - present

Course for undergraduate students in "Chemistry" at the Engineering Faculty of Università di Palermo

Jan 2006 - present

Course for undergraduate students in "Electrochemical Energy Conversion and Storage" at the Engineering Faculty of Università di Palermo

Jan 2001 - present

Lab. Courses and tutoring for undergraduate students of "Applied Electrochemistry" at the Engineering Faculty of Università di Palermo

SELECTED SYNERGISTIC ACTIVITIES

Acted as reviewer for:

Journal of Electrochemical Society, Electrochimica Acta, Thin Solid Films, Corrosion Science, Corrosion Engineering Science and Technology, Electrochemistry Communications, Journal of Alloys and Compound, Journal of Applied Electrochemistry, Journal of Biomedical Materials Research, Journal of Surface Science, Corrosion, and others.

Member of

Italian Chemical Society

Electrochemical Society

International Society of Electrochemistry

Coordinator of the organizing committee of “Corrosion Science and Engineering” Symposium of the 63rd ISE annual meeting (19-24 August, 2012, Prague, Czech Republic)

RECENT COLLABORATIONS

G. Thompson e Prof. P. Skeldon, Corrosion and Protection Centre - School of Materials, The University of Manchester (UK)

L. Anicai, Department of Environmental Protection and Technological Development Petromservice SA, str. Gral Budisteanu 11 bis, Bucharest (Romania);

K. Shimizu, University Chemical Laboratory, Keio University, 4-1-1 Hiyoshi, Yokohama 223 (Japan);

H. Habazaki, Graduate School of Engineering, Hokkaido University, Sapporo 060-8628 (Japan)

P. Marcus, CNRS-ENSCP (UMR 7045), Ecole Nationale Supérieure de Chimie de Paris.