

## CURRICULUM VITAE ET STUDIORUM

Name and surname: **Ida Pettiti**  
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High school: scientific diploma on 1985, with best marks, 60/60

Degree: graduated in Chemistry from the University "La Sapienza" of  
Rome on December 1990, with the best marks, 110/110 cum laude.  
Title of the thesis: "Preparation and characterization of high Tc  
superconducting materials containing Bi, Sr, Ca, Cu, O, and  
doped with Y".  
Supervisors: Prof. Piero Porta (Chemistry) and Prof. Antonio  
Bianconi (Physics).

Present position: university researcher in the group of General and Inorganic  
Chemistry at the University "La Sapienza" of Rome, since June  
1992.

### Scientific Activity

During the period of the thesis the scientific activity was directed towards a systematic study of the structural and electronic properties of new high Tc superconducting oxides in order to correlate the structural variations, particularly on the Cu site, and the electronic structure as a function of temperature and doping. Superconducting materials were prepared in our laboratories and the investigation was developed by using the following techniques:

XRD, Atomic Absorption Spectroscopy, DRS (Diffused Reflectance Spectroscopy), Magnetic and Electric Resistance measurements, XPS, EXAFS and XANES.

The work was carried out in the laboratories of:

- i) Department of Chemistry, University "La Sapienza" of Rome, and Centro di Studi CNR-SACSO (Struttura ed Attività Catalitica di Sistemi di Ossidi), with Prof. P. Porta.
- ii) Department of Physics, University "La Sapienza" of Rome, Solid State group directed by Prof. A. Bianconi.
- iii) LURE (Laboratoire pour l'Utilisation du Rayonnement Electromagnetique), Orsay, France, EXAFS beamline on DCI storage ring directed by Dr. A.M. Flanck.

After graduating, the scientific activity was devoted to structural studies of materials which were employed as oxidic catalysts:

- a) pillared layered compounds containing Al, Zn, Cu, and Co;
- b) Cu - Zn - Cd -containing chromite catalysts;
- c) Anderson's phases containing Ni, Mo, and W;
- d) zeolites exchanged by transition metals;
- e) Cu - Zn -containing manganites.

During this period some experience with the FTIR technique and with catalytic performances of materials was also made.

Recently the research was aimed to the preparation and investigation of oxide and metal catalysts unsupported and supported on alumina and zirconia, in order to correlate surface and structural properties of these materials with their catalytic activity.

The systems investigated are:

- a) perovskite oxides ( $ABO_3$ , A = La, Nd, Sm, Ca, Sr, Ba; B = Mn, Co, Fe, Al, Cr, Cu, Mg) prepared in our laboratories and employed for total combustion of hydrocarbons and  $NO_x$  abatement reactions;
- b) W and Mo oxides supported on  $ZrO_2$  prepared in our laboratories and employed for hydrocarbons isomerization and alkylation reactions;
- c) Co(Ni) - Mo -containing catalysts for the hydrodesulfuration reaction.
- d) Rh, Ni and Cu metal catalysts supported on monoclinic or tetragonal  $ZrO_2$  for the catalytic partial oxidation (CPO) and dry reforming of methane.

Catalysts structural characterization was performed by using the following and well known techniques:

XRD, DRS, FTIR, Raman, EXAFS, XANES, magnetic measurements by the Gouy method,  $N_2$  adsorption/desorption measurements (surface area and porosity).

Studies are carried on at the SACSO laboratories of the Department of Chemistry of the University "La Sapienza" of Rome; EXAFS measurements were performed at the SRS laboratories of Daresbury (England) and at the Gilda beamline of ESRF (European Synchrotron Radiation Facility), Grenoble (France).

## **Publications**

Author of 38 articles, 4 proceedings and 34 Congress contributions.

## **Grants**

Two grants:

- from 7/2/1991 to 7/3/1991 (Consorzio Interuniversitario per la Biofisica);
- from 1/4/1991 to 1/4/1992 (INFN).

**Prizes**

Two prizes (ENICHEM) in 1988 and 1989 and one prize (FEDERCHIMICA) in 1990 for the marks got during the university course and for the thesis respectively.

**Languages**

Italian and English

**Computer Science**

Unix, Digital (VMS), Microsoft and Apple systems.