Curriculum Vitae

Education

- Laurea degree (a five years course) in Chemistry at the Università di Pavia, cum laude.
- 'Dottorato di Ricerca' (PhD) thesis in Physical Chemistry, on the mechanisms of the solid state synthesis of oxide superconductors.
- Post doctoral period (six months) at the University of Kent at Canterbury during which he became familiar with XAS application to solid state chemistry.
- Paper based TOEFL test passed.

Employments

Paolo Ghigna was employed at the University of Pavia as ricercatore (assistant professor) in 1995.
In 2000 he was invited as visiting scientist at the ID20 beamline at ESRF (Grenoble) for a period of six months. This invitation was renewed in 2004. In 2008 he was invited to act as Consultant Scientist at the ID20 beamline at ESRF for a period of six months.
In 2001 he was designated as professore associato (associate professor) at the Università di Pavia, and responsible of the “Material Synthesis” laboratory. He at the moment is still engaged in this role.

Research Activity

The research activity of Paolo Ghigna was initially devoted to the study of the solid state synthesis of cuprate superconductors. As a natural extension of this research activity, the study of the defect properties of oxides (cuprate superconductors, perovskite oxides, spinels, garnets and fluorite structure oxides) was initiated. For performing this kind of research, Paolo Ghigna started to apply synchrotron radiation techniques, in particular EXAFS and XANES, for investigating the local structural and electronic properties of these materials. The familiarity with this kind of techniques has naturally lead to the study of disordered system, and in particular to the study of the short range structure in super-ionic glass conductors. Another extension of this kind of spectroscopic techniques involving the application of synchrotron radiation was used for studying the magnetic properties of super-paramagnets (Mn12Ac, Fe8 and other compounds) by means of XMCD. In parallel the application of Resonant X-ray Scattering was employed for investigating the complex phenomenon of orbital order, in perovskite model systems such as $KCuF_3$. A further research subject recently started involves the application of ReflEXAFS and other synchrotron radiation based probes to the study of the very initial stages of solid state reactions. For this project, Paolo Ghigna collaborated to the development ReflEXAFS end-station that is currently installed at the BM08 beamline at the European Synchrotron Radiation Facility (ESRF, Grenoble, France). To face this extremely complex problem, a new experimental protocol was elaborated, based on using at least one of the reactants in for of thin film, and involving a multidisciplinary and multi-technique approach, making use of AFM, reflEXAFS, electron microscopy and diffraction, micro-XANES mapping, surface diffraction and computer modelling to make predictions able to guide experimental work.
The expertise acquired on thin-films structures was recently extended to the study of other nanostructured materials: in fact, the application of synchrotron radiation techniques to the study of nano-materials is another field of research to which Paolo Ghigna is dedicating increasing interest.
It should also be remarked that the major part of the materials investigated are (or can be used as model systems) of technological relevance in the field of energetics; they were also synthesized by Paolo Ghigna or under his supervision.
Paolo Ghigna is author, besides of many communications to international conferences, of more than 100 scientific articles on international journals, and book chapters on oxide superconductors and colossally magnetorestive manganites. He recently has operated as the editor of a book on the Solid

State Chemistry of 4*f* elements (ISBN 978-81-7895-389-2). Moreover, he has acted as a reviewer for journals such as Dalton Transactions, J. Solid State Chem., PCCP, Chem. Mat., J. Phys. Chem. B, J. Mater. Chem., Phys. Rev. B, Phys Rev Lett. He is at the moment acting as guest editor for Current Inorganic Chemistry, for a themed issue on complex oxides.
The ability of Paolo Ghigna in writing successful research proposals is testified by the fact that he acted as coordinator for several research projects in the field of material science that have been financed by the Italian Ministry of University and Scientific Research, and by the large amount of beam-time awarded by synchrotron radiation facility all over Europe (ESRF, LURE, ELETTRA, SLS, Diamond, SRS).

Memberships
Paolo Ghigna is a member of the American Chemical Society, of the International XAFS Society, of the Società Chimica Italiana, of the Società Italiana di Luce di Sincrotrone, for which he serves the role of vice-chair person, and finally, of the European Synchrotron User Organisation (ESUO).

Awards
1990 - Prize "Per un futuro intelligente" of Federchimica (Italian Association of Chemical Industries) as one of the best four graduated in Chemistry in Italy.
1992 - Prize "A. Lucci" of AICAT (Italian Association of Calorimetry and Thermal Analysis)

Recent grants by external founding agents:
2009 – 75.000 Euros by Fondazione Banca del Monte (Bank Foundation), for installing a diffactometer for neutron powder diffraction.
2010 – 400.000 Euros by CARIPLO (Bank Foundation) for a project on magneto-plasmonic nanomaterial.
2012 – 150.000 Euros by Cariplo (Bank Foundation) for a project on thermoelectric materials.
Teaching Activity
Regarding his teaching activities, he at the moment is involved in teaching courses regarding the physical chemistry properties of materials, spectroscopy of the solid state and irreversible thermodynamic, to both undergraduate and graduate students in Chemistry at the University of Pavia. In addition he gives lectures regarding the synthesis and the characterisation of materials with various techniques, for the Master in Material Science at the University of Pavia, for the European School of Advanced Studies in Material Science and for the PhD School in Science at the same University,. He also acted as supervisor for several students for the experimental work needed for getting their “Laurea” degree and PhD.

A list recent of publications (5 out of 120) follows:

1) I. Rossetti, G. F. Mancini, P. Ghigna, M. Scavini; M. Piumetti, B. Bonelli, F. Cavani, A. Comite *J. Phys. Chem. C* **116**, 22386-22389 (2012).
2) S. Pin, F. Piccinelli, K. U. Kumar, S. Enzo, P. Ghigna, C. Cannas, M. Musinu, G. Mariotto, M. Bettinelli, A. Speghini *J. Solid State Chem.* **196** 1-10 (2012).
3) F. Pineider, C. de Juliàn Fernadez, V. Videtta, E. Carlino, A. al Hourani, F. Wilhelm, A. Rogalev, P. D. Cozzoli, P. Ghigna, C. Sangregorio *ACS Nano* **7**, 857–866 (2013)
4) S. Pin, M. Suardelli, F. D’Acapito, G. Spinolo, M. Zema, S. C. Tarantino, P. Ghigna *J. Phys. Chem. C*, **117** 6105–6112, (2013)
5) S. Pin, M. Suardelli, F. D’Acapito, G. Spinolo, M. Zema, S. C. Tarantino, L. Barba, P. Ghigna *J. Phys. Chem. C*, **117** 6113 (2013)