Viviana CRISTIGLIO

Curriculum Vitae

PERSONAL INFORMATION

Home address: 30, rue de New York
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France
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Date & place of birth: 25/11/1978, Torino (Italy)
Marital status: single
Citizenship: Italian
Languages: Italian (native speaker), English and French fluent

EDUCATION

2004 - *Laurea Specialistica in Fisica delle Tecnologie Avanzate* from University of Turin, Italy.
Thesis: "X-ray Imaging Investigation of Metallic Alloys Solidification".
2002 - *Laurea Triennale in Fisica* from University of Turin, Italy.
Thesis: "Study of a Power Amplifier with PHEMT Components".

PROFESSIONAL EXPERIENCE

Jan. 2005 - present: PhD at the Institut Laue Langevin - ILL (Grenoble) and at the Centre de Recherche sur les Matériaux à Hautes Températures - CRMHT (CNRS-Orléans), France.
Oct.2002 - Mar.2004: Trainee at the ID19 beamline at ESRF research institute (Grenoble), France.
May - July 2002: Trainee at the Electronic Laboratory at University of Turin, Italy.

RESEARCH ACTIVITIES

- Use of aerodynamic levitation with laser heating system for neutron and synchrotron investigations of liquids: installation of this device at the ILL (D4c instrument), at ESRF beamlines (ID15, ID16, ID11) and at the synchrotron radiation facility SOLEIL (DiffAbs beamline).
- Structural studies of liquid metallic alloys (Al-based alloys) and molten oxides (systems CaO-Al_2O_3 and MgO-Al_2O_3) by containerless techniques combined with x-ray diffraction, inelastic x-ray scattering, anomalous x-ray scattering, neutron scattering and small angle neutron scattering.
- Analysing of liquid oxides structure by *ab-initio* molecular dynamics simulations: use of VASP as simulation program, nMoldyn package to analyse the MD data and LAMP, program developed at ILL, for the visualization of the data.
- Study of solidification-front in metallic alloys, using the newly constructed UHV-furnace, made at ESRF, with a vertical growth direction.
- Acquisition of necessary knowledge about x-ray imaging techniques.
- In situ investigation of the morphologies of directionally solidified Al-Ni and $Al_{72.4}Pd_{20.5}Mn_{7.1}$ quasicrystal samples, at fixed temperature gradient, as a function of the pulling rate, using simultaneously absorption, phase contrast and white beam x-ray topography.
- Knowledge about Finite Differences and Finite Elements methods to resolve thermal analysis problems using ANSYS program.

EXPERIENCE IN APPLICATION OF EXPERIMENTAL TECHNIQUES

- X-ray diffraction, inelastic x-ray scattering and anomalous x-ray scattering of levitated liquids
- in levitated liquids
- Neutron diffraction and small-angle neutron scattering in levitated liquids
- *Ab-initio* Molecular Dynamics Simulation
- X-ray imaging techniques as absorption, phase contrast and white beam x-ray topography and radiography

COMPUTER SKILLS

- Operative systems: Windows, Linux, both working either stand-alone or in local network.
- Word processing and applications: Word, Excel, Power Point in generic use, Latex, Mathematica, Gnuplot for professional use, LAMP, nMoldyn.
- Programming languages: Mathematica, LabView, basic level of IDL and FORTRAN language
- Simulation Programs: VASP, AnSys, P-Spice.

PUBLICATIONS IN REFFERED JOURNALS

1. **L. Hennet, I. Pozdnyakova, A. Bytchkov,V. Cristiglio, P. Palleau, H. E. Fischer, G. J. Cuello, M. R. Johnson, P. Melin, D. Zanghi, J.-F. Brun, S. Brassamin, D. L. Price, M.-L. Saboungi**
   Levitation apparatus for neutron diffraction investigations on high temperature liquids, Rev. Sci. Instrum., 77 (2006), 053903
2. **I. Pozdnyakova, L. Hennet, G. Mathiak, J. Brillo, D. Zanghi, J.-F. Brun, S. Brassamin, A. Bytchkov, V. Cristiglio, E. Veron, G. Matzen, G. Geandier, D. Thiaudière, S. C. Moss, I. Egry, D. L. Price**
   Structural properties of molten dilute aluminium - transition metal alloys Submitted to Phys. Rev. B
3. **T. Schenk, H. Nguyen Thi, J. Gastaldi, G. Reinhart, V. Cristiglio, N. Mangelinck-Noël, H. Klein, J. Härtwig, B. Grushko, B. Billia, J. Baruchel**
   Application of synchrotron X-ray imaging to the study of directional solidification of aluminium-based alloys, Journal of Crystal Growth, 275 (2005), 201-208
4. **N. Mangelinck-Noël, H. Nguyen-Thi, G. Reinhart, T. Schenk, V. Cristiglio, M.-D. Dupouy, J. Gastaldi, B. Billia, J. Härtwig, J. Baruchel**
   In situ analysis of equiaxed growth of aluminium-nickel alloys by x-ray radiography at ESRF, Journal of Physics D: Applied Physics, 38 (2005) A28–A32
5. **H. Nguyen-Thi, J. Gastaldi, T. Schenk, G. Reinhart, N. Mangelinck-Noel, V. Cristiglio, B. Billia, B. Grushko, J. Härtwig, H. Klein, J. Baruchel**
   Probing the dynamics of quasicrystal growth using synchrotron live imaging
   Available on http://arxiv.org/ftp/cond-mat/papers/0504/0504713.pdf
6. **T. Schenk, H. Nguyen Thi, J. Gastaldi, G. Reinhart, V. Cristiglio, N. Mangelinck-Noël, H. Klein, J. Härtwig, B. Grushko, B. Billia, J. Baruchel**
   Application of Synchrotron X-ray Imaging to the Study of Directional Solidification of Aluminium-based Alloys
   ESRF Highlights 2004
7. **T. Schenk, H. Nguyen Thi, J. Gastaldi, G. Reinhart, V. Cristiglio, N. Mangelinck-Noël, H. Klein, J. Härtwig, B. Grushko, B. Billia, J. Baruchel**
   Live Observation of the Growth of Quasicrystal Grains
   ESRF Spotlight on Science, available on http://www.esrf.fr/NewsAndEvents/Spotlight/spotlight8quasicrystals/

CONFERENCE PROCEEDINGS

1. **T. Schenk, H. Nguyen Thi, J. Gastaldi, G. Reinhart, V. Cristiglio, N. Mangelinck-Noël, H. Klein, J. Härtwig, B. Grushko, B. Billia, J.,**
   Application of Synchrotron X-ray imaging to the Study of Directional Solidification of Aluminium – based Alloys

   Proceeding of the 14th International Conference on Crystal Growth and 12th International Conference on Vapour Growth an Epitaxy, 9-13 August 2004, Grenoble, France

ATTENDED SCHOOLS & WORKSHOPS

1. **Higher European Research Course for Users of Large Experimental Systems – Hercules**
2. February-March 2005, Grenoble, France
3. **Users' Meeting SOLEIL**
   18-19 January 2006, Université Paris-Sud, Orsay (France)
4. **Le rencontres LLB – Soleil – Diffraction de Poudres**
   2-3 March 2006, **Synchrotron SOLEIL**, **GIF-sur-YVETTE** (France)
5. **5èmes Journées SOLEIL en Région Centre (JSRC) - Conseil Régional, Orléans**
   13-14 March 2006, Orleans (France)

REFERENCES

- **Dr. Louis Hennet,** hennet@cnrs-orleans.fr, Phone (+33) (0)2 38 25 55 31, CNRS-CRMHT, 1d, avenue de la Recherche Scientifique 45071 Orléans Cedex 2, France
- **Dr. Gabriel J. Cuello,** cuello@ill.fr, Phone (+33) (0)4 76 20 76 97, ILL, 6, Rue Jules Horowitz - B.P.156 38042 Grenoble Cedex 9, France
- **Dr. Mark Johnson,** johnson@ill.fr, Phone (+33) (0)4 76 20 71 39, ILL, 6, Rue Jules Horowitz - B.P.156 38042 Grenoble Cedex 9, France