



## SOPRANO

### “Spin and Orbital Physics: Research of Advanced New Oxides”

#### OPEN POSITIONS FOR PREDOCS AND POST-DOCS

Several predoc and post-doc positions are available within the Initial Training Network (ITN) ‘SOPRANO’, funded by the Marie Curie actions under the FP7 People programme from the European Community ([http://cordis.europa.eu/fp7/people/initial-training\\_en.html](http://cordis.europa.eu/fp7/people/initial-training_en.html)).

Positions will be available from the 1<sup>st</sup> of October 2008. PhDs will be prepared between two laboratories of the network, and exchanges between the participants will be strongly favoured. We are currently looking for students with a strong knowledge in solid-state chemistry or solid-state physics

**Keywords:** transition metal oxides, synthesis, structural characterization, electronic and magnetic properties, spectroscopy, electronic structure calculations.

The salaries will follow the European regulation with a monthly salary plus mobility allowance, and travel and career exploratory allowances. The candidates can be of any nationality (European or non European), but not from the country in which he/she will be hired.

SOPRANO gathers 8 laboratories:

- Laboratoire CRISMAT, Caen , France (Dr Sylvie Hébert)
- Laboratoire ICMCB, Bordeaux, France (Dr Jean-Pierre Doumerc)
- II Physikalisches Institut Universitaet zu Koeln, Germany (Prof. Hao Tjeng)
- Max Planck Institute for Solid State Research, Stuttgart, Germany (Dr Clemens Ulrich)
- Facultad de Ciencias Quimicas, Madrid, Spain (Prof. Miguel Alario Franco)
- Department of Chemistry, University of Liverpool, UK (Prof. Matt Rosseinsky)
- National Institute R&D electrochemistry and condensed matter, Timisoara, Romania (Dr. Marinela Miclau)
- NXP, Caen, France (Catherine Bunel)

If you are interested by these positions, please send your CV to the network coordinator, Dr Sylvie Hébert from Laboratoire Crismat (Caen, France): [sylvie.hebert@ensicaen.fr](mailto:sylvie.hebert@ensicaen.fr)

## Soprano Positions

ER = post-doc

ESR = pre-doc

WP	ESR / ER	Partner	Topic
WP1	ESR1	Köln (24) – Caen (12)	Theoretical aspects of high oxidation state materials
WP1	ESR2	Caen (24) – Stuttgart (12)	Thermoelectric properties of new layered rhodium oxides
WP1	ESR3	<del>Caen (24) –</del> Liverpool (12)	<del>Synthesis and DFT analysis of new thermoelectric materials</del> → <b>This position has been filled</b>
WP1	ESR4	Bordeaux (24) - Timisoara (12)	Electronic properties of thermoelectric layered cobaltites
WP1	ESR5	Timisoara (24) - Bordeaux (12)	New layered cobalt oxides for thermoelectric applications : comparison of different synthesis techniques.

WP2	ESR6	Stuttgart (24) – Timisoara (12)	High pressure synthesis of unusual oxidation states
WP2	ESR7	Madrid (24) – Timisoara (12)	Single crystal growth under pressure
WP2	ESR8	Madrid (24) – Bordeaux (12)	High pressure phases and characterizations
WP2	ESR9	Köln (24) – Timisoara (12)	Metallic versus insulating layered 3d <sup>1</sup> systems
WP2	ESR10	Stuttgart (24) – Liverpool (12)	High pressure synthesis and DFT modeling of coexisting local moment/itinerant electron systems
WP2	ER1	Liverpool (12)	Laser MBE deposition of new materials

WP3	ESR11	Bordeaux (24) – Köln (12)	Spin state ordering and metal/insulator transition
WP3	ESR12	Madrid (24) – Köln (12)	Pressure induced phase transitions in RCrO <sub>4</sub> oxides
WP3	ESR13	Madrid (24) – Köln (12)	Synthesis and study of novel frustrated and multiferroic oxides

<b>WP3</b>	ESR14	Timisoara (24) – Caen (12)	Investigation of new chromium oxides synthesized by hydrothermal methods
<b>WP3</b>	ESR15	Köln (24) – Timisoara (12)	Spectroscopic studies of novel materials with complex structures → <b>This position has been filled</b>
<b>WP3</b>	ER2	Caen (24)	Tailoring oxides exhibiting large magnetocaloric effects
<b>WP3</b>	ER3	Bordeaux (24)	Towards magnetocaloric properties

<b>WP4</b>	ESR16	Köln (24) – Stuttgart (12)	Orbital and spin physics at thin film interfaces → <b>This position has been filled</b>
<b>WP4</b>	ESR17	Liverpool (24) – Köln (12)	Physical characterisation of thin films and multilayers – electronic and spin-state phenomena
<b>WP4</b>	ESR18	NXP (36)	Resonator with Metal / AlN / Metal
<b>WP4</b>	ER4	Madrid (12)	Pressure effects : comparison between thin films and crystals
<b>WP4</b>	ER5	Stuttgart (24)	Raman light scattering on transition metal oxide superlattices: Interplay between charge and orbital rearrangements
<b>WP4</b>	ER6	Liverpool (24)	Laser MBE growth of artificial heterostructures based on high oxidation state materials → <b>This position has been filled</b>

### Conditions of eligibility

- Early-stage researchers must, at the time of selection by the host organisation, be in the first 4 years (full-time equivalent) of their research career from the date when they obtained the degree.
- Experienced researchers must, at the time of selection by the host organisation, either be in possession of a doctoral degree or have at least 4 years of full-time equivalent research experience so that only experienced researchers within the first 5 years of their research career can be hired.

☞ If you are interested by these positions, please send your CV \_and a copy of your diploma (Master Degree or PhD)\_ to the network coordinator, Dr Sylvie Hébert from Laboratoire Crismat (Caen, France): [sylvie.hebert@ensicaen.fr](mailto:sylvie.hebert@ensicaen.fr)