



Materials Science - V.P. POSITION

DESCRIPTION OF THE PHD PROGRAM

The PhD School in Materials Science at the University of Parma provides a highly multidisciplinary course encompassing all aspects of chemistry and physics related to materials. The Board of Graduate studies is composed by 26 members, belonging to the following research areas: inorganic, organic, physical and analytical chemistry; solid state and applied physics. The School is international offering double degrees with the Universities of Cape Town (SA), Stockholm (SE) and Kazan (RU). At present, 34 students are enrolled in the PhD program with a sizable percentage of non-Italians (9), of whom 5 are Marie Curie Fellows.

The visiting professor will be involved in research activities mainly related to functional inorganic materials for applications in green and energy-efficient technologies for energy conversion (e.g. wind-turbines, electric vehicles, magnetic coolers, energy harvesters). The activity will be focused on multi-scale design and study of magnetic materials of new composition, by substituting rare and expensive raw materials.

DESCRIPTION OF THE SCIENTIFIC FIELD & VISITING PROFESSOR PROFILE

The proposed research is in the field of functional materials for applications in green and energy-efficient technologies for energy conversion (e.g. wind-turbines, electric vehicles, magnetic coolers, energy harvesters). The activity will be focused on multi-scale design of magnetic materials of new composition, by substituting rare and expensive raw materials. The sustainability of processes and the possible recycling of materials will also guide the materials design.

The successful implementation of this strategic activity will be promoted by the recruitment of a Visiting Professor (ViP) of highly recognized experience in the above fields.

He/She will allow the acquisition of new expertise and will boost an interdisciplinary effort at UniPr in materials for energy, involving several departments, regional laboratories, CNR and enterprises, This activity will also be of great benefit for "Centro Interdipartimentale per l'Energia e l'Ambiente (CIDEA)".

DESCRIPTION OF THE DIDACTIC ACTIVITIES OF THE VISITING PROFESSOR

The V.P. will give advice on the best practices for postgraduate education and enhancing career prospects. He/she will attend students' annual seminars and provide scientific and career support to graduate and postgraduate students from UNIPR.

The V.P. will co-supervise the activities of a PhD student enrolled @UNIPR. He/she will be accessible regularly and ensure the PhD's scientific progress, planning regular team and individual progress meetings via skype. The student will spend at least two semesters at the V.P.'s institution.

The V.P. will present each year open elective courses (about 16h/year) for PhD students. The proposed lectures will cover the following interdisciplinary topics: "Critical metals and energy technologies", "Advanced materials for the efficient use of energy", "Magnetic technologies for energy".

Presence at the University of Parma: A minimal commitment of 4 weeks per year.