POLITECNICO DI MILANO

PhD in SCIENZE E TECNOLOGIE ENERGETICHE E NUCLEARI / ENERGY AND NUCLEAR SCIENCE AND TECHNOLOGY - 39th cycle

PNRR 117 Research Field: NANOTECHNOLOGIES FOR NEXT GENERATION LI-ION BATTERIES

Monthly net income of PhDscholarship (max 36 months)
€ 1500.0 In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity	
Motivation and objectives of the research in this field	Increasing levels of anthropogenic CO2 require drastic measures in terms of sustainable energy production and storage. Nano science and technology are at the fore front of such endeavor enabling processes previously not viable. Focus of the new PhD programs will be on novel materials for next generation energy storage technologies, with a special focus on Li-ion batteries. The main objective is innovation, by exploiting new knowledge in proof of concepts devices.
Methods and techniques that will be developed and used to carry out the research	An important aspect will be the production of innovative nanostructured materials, thin films and surfaces, by physical deposition techniques (e.g. pulsed laser ablation, sputtering), PECVD and chemical synthesis. Advanced characterization techniques will be used to assess material structure and electrochemical properties. Small scale devices will be constructed as well in order to test material properties in relevant working conditions. The work will be carried out in close collaboration between X-nano S.r.l. and Politecnico di Milano.
Educational objectives	Education of people to be introduced in the world of research and technology in the field of physics and engineering of materials, able to manage interdisciplinary issues, perform and interpret complex experiments and

	produce new equipments.
Job opportunities	Private and public R&D, Highly qualified positions in a wide range of industries related with production, development and use of materials.
Composition of the research group	1 Full Professors 2 Associated Professors 1 Assistant Professors 5 PhD Students
Name of the research directors	Claudio Rabissi, Andrea Casalegno

Contacts
Research group website: https://www.mrtfuelcell.polimi.it/ *claudio.rabissi@polimi.it* *Company website: https://x-nano.it/* *fabio.difonzo@x-nano.it (x-Nano s.r.l.)*

Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	750.0 €
By number of months	6

National Operational Program for Research and Innovation	
Company where the candidate will attend the stage (name and brief description)	X-nano S.r.l.
By number of months at the company	18
Institution or company where the candidate will spend the period abroad (name and brief description)	Company, research center or university to be agreed with x-Nano s.r.l.
By number of months abroad	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
Increase in the scholarship for stays abroad: euro 750 per month, for up to 6 months. ***Educational activities:***Financial aid per PhD student is available for purchase of study books

and material, funding for participation in courses, summer schools, workshops and conferences, instrumentations and computer, etc. This amount is equal to 10% of the annual gross amount, for 3 years.

Teaching assistantship:Availability of funding in recognition of supporting teaching activities by the PhD student. There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.

Computer availability: individual use.
Desk availability: individual use.