



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

**PNRR 118 PA Research Field: ANALYSIS OF THE DECARBONIZATION AND SYNERGIES BETWEEN THE TRANSPORT AND POWER SECTORS IN ITALY**

**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

Concerns related to climate change are the main driving forces of the interest toward zero (or quasi zero) emission electricity production systems, based on renewable energy sources (e.g. concentrated solar power, wind, biomass, advanced photovoltaics) as well as carbon capture and sequestration.

In addition to the technology development, a comprehensive modelling approach to define the strategies towards zero climate emissions is needed for minimizing the time horizon and connected costs.

The objective of the research topic aims at identifying synergies between the different sectors to maximize the impact and minimizing the costs. In particular, the power and transport sector will be analyzed and modelled through dedicated tools specifically developed within the research activity.

The research activity will be carried out in collaboration with EURAC research.

For more information about activities and laboratories of the research group: [www.gecos.polimi.it](http://www.gecos.polimi.it)

### Methods and techniques that will be developed and used to carry out the research

Research activity is (a) theoretical and focused on simulation and optimization of complex, multienergy systems and advanced components adopting python/matlab based tools coupling with energy planning models as oEMOF, Calliope....



<b>Educational objectives</b>	The PhD candidate will work in a highly motivated and qualified large research group ranked at the top position of the Italian university system. The PhD candidate will gain experience, knowledge and skills in cutting edge technologies of the power generation and energy conversion field, with possible involvement in international and EU projects as well as in the cooperation with leading universities, industries and R&D institutions.. The PhD work will be carried out in collaboration with EURAC research.
<b>Job opportunities</b>	This research activity will qualify the candidate for future academic and research positions, as well as for a highly qualified professional career in industries or organizations operating in the energy field.
<b>Composition of the research group</b>	5 Full Professors 7 Associated Professors 7 Assistant Professors 40 PhD Students
<b>Name of the research directors</b>	Giampaolo Manzolini

<b>Contacts</b>
www.gecos.polimi.it giampaolo.manzolini@polimi.it

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

<b>Scholarship Increase for a period abroad</b>	
<b>Amount monthly</b>	750.0 €
<b>By number of months</b>	6

<b>National Operational Program for Research and Innovation</b>	
<b>Company where the candidate will attend the stage (name and brief description)</b>	EURAC - research
<b>By number of months at the company</b>	6
<b>Institution or company where the candidate will spend the period abroad (name and brief description)</b>	Reiner Lemoine institute
<b>By number of months abroad</b>	6



**Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information**

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  
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