



**POLITECNICO**  
MILANO 1863



## **Post-doc Fellowship in modelling of CO<sub>2</sub> capture systems**

### **Job description**

The job is in the area of process modelling and process engineering of power and industrial plants with CO<sub>2</sub> capture and on their techno-economic assessment. The candidate will mainly work in industrial projects and may be involved in European projects on this topic.

More specifically, the work will consist in:

- Performing process simulations and techno-economic analysis of the CO<sub>2</sub> capture systems to be assessed;
- Performing techno economic analysis of CO<sub>2</sub> transport, storage and utilization for the Italian context;
- Supervising PhD and MSc students involved in the projects;
- Writing technical reports and papers.

The candidate may also be involved in the preparation of research projects proposals for competitive calls.

The candidate will likely be involved in teaching activities as teaching assistant of classes in the area of Energy Systems and Energy Conversion. Participation in activities as teaching assistant will ensure additional incomes.

In the course of this job experience, the candidate:

- Will develop technical skills thanks to the guidance of experienced professors and research staff of the "Gecos" research group and thanks to the collaboration with companies and other academic partners involved in the projects.
- Will develop project management skills.
- Will develop skills in the preparation of research projects proposals for competitive calls.
- Will develop teaching skills.
- Will have the possibility of developing own research ideas autonomously.

### **Requirements**

The optimal candidate should:

- hold a PhD in Energy Engineering, Chemical Engineering or related subjects with a thesis or significant working experience on process engineering;
- have experience with process modelling software (e.g. Aspen Plus, Aspen Hysys, Pro/II, Thermoflex);
- have experience on modelling, simulation and techno-economic analysis of some of the following: industrial plants (cement plants, steel mills, hydrogen production plants, etc...),

power plants, CO<sub>2</sub> separation processes, CO<sub>2</sub> utilization processes, thermodynamic cycles for heat recovery, CO<sub>2</sub> transport;

- be an excellent writer of scientific papers and reports;
- be a passionate hard worker;
- be willing to learn Italian (or know Italian already).

### **Duration and expected starting date**

The contract will have a duration of 2 years, starting possibly from January 2021. There is however some flexibility in defining the starting date.

### **Salary**

Between 26'000 and 34'000 € per year, net.

### **Working environment**

The hosting institute is the Department of Energy of Politecnico di Milano. Politecnico di Milano is the largest Engineering School in Italy. In the 2020 QS ranking, Politecnico di Milano ranked 20th in the world, 7th in Europe and 2nd in the continental EU in the Engineering and Technology area.

The Group of Energy Conversion Systems “Gecos” is one the leading European research groups in the field of CO<sub>2</sub> capture and supports the development of novel technologies through the participation in several of the most important H2020 projects on the demonstration of CO<sub>2</sub> capture systems at TRL6-7. Examples of such projects are: Cleanker, Cemcap, Stepwise, Leilac2, C4U, MOF4AIR, REALISE.

Gecos is also a leading group in several other areas related to energy conversion, such as renewable power generation, bioenergy and biofuels production, advanced power cycles, hydrogen, fuel cells and electrochemical systems, micro-grids and multi-energy systems, energy systems optimization. Working in a group active in such a broad research area favors cross-fertilization and gives the opportunity to learn and develop ideas on new topics with a number of young and experienced colleagues.

For more information on the research of Gecos, explore our web site: <http://www.gecos.polimi.it/>

### **Life in Milan area**

Milan is a dynamic city that offers a rich and vibrant life environment, including many cultural offers (from historical monuments and art museums to theaters and exhibitions) as well as a variety of recreational opportunities. It is strategically located:

- at less than 2 hours of high speed train from worldwide famous art cities (e.g. Firenze, Bologna, Torino, Verona, Padova, Genova; to Venezia, you need 30 minutes more),
- at less than 2 hours of driving from the Alps with its hiking and ski areas and from the sea,
- at less than 2 hours of train or driving from worldwide famous spots such as the North Italian lakes, Langhe, Portofino riviera and less known gems (e.g. Bergamo, Mantova, Pavia, Cremona, Piacenza, Sabbioneta, Adda river, val Trebbia, Oltrepò pavese).

To make it short, you will have countless opportunities to complement engineering with open air activities and with the contemplation of man-made and natural beauty.

## **Application procedure**

To apply to this position, please send your detailed CV and a motivation letter to [matteo.romano@polimi.it](mailto:matteo.romano@polimi.it) . It is guaranteed that applications received before September 30<sup>th</sup> will be considered.

A limited number of applicants will be pre-selected based on the CV and will be interviewed. The most suitable candidates for the post-doc position will be invited to participate in a public competition where the final selection is made.