GENIUS
DOCTORAL NETWORK ON
ENERGY GEOSTRUCTURES

Funded by
the European Union

GENIUS Doctoral Network on Energy Geostructures Integration : Buildings, Infrastructure and Underground Storage

Politecnico di Torino
1859

PhD Positions at Politecnico di Torino

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GENIUS - MSCA Doctoral Network: Overview | LinkedIn

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Project Overview

GENIUS pioneers a comprehensive approach to address the biggest global challenge the energy sector is facing: the transition to renewable-based, energy-efficient heating and cooling systems. Space heating and cooling currently makes up the world's largest energy sector, accounting for approximately 50% of the final energy consumption. This figure is expected to grow rapidly over the coming decades due to economic and population growth, and inevitable increase in urbanisation. At the same time, the world is experiencing one of the most severe global energy crises in history, impacting the fossil fuels' availability and cost.

More than ever, there is an urgent need for innovative technologies to harvest renewable energy resources, to decrease our dependence on fossil fuels. Energy Geostructures (EGs) represent an effective means to meet the world request of less dependence on unsustainable resources by being designed as dual-purpose elements targeting geothermal heat exchange and structural support for buildings. Yet, their wider use has been hindered by the lack of (i) sustainable expertise pipeline in the field of energy geotechnology, (ii) technical knowledge regarding the integration of energy geostructures to buildings and infrastructure, (iii) scientific knowledge for the integration of energy geostructures with other underground structures. GENIUS will address all three challenges by developing advanced analysis and design tools for energy geostructures (WP-1) and by advancing practical and scientific knowledge for their integration with buildings, infrastructure and other energy resources (WP-2 and WP-3). Furthermore, the holistic approach of GENIUS will train the Doctoral Candidates to become pioneering experts in conceptualization, design and implementation of energy geostructure applications. Networking with their peers, industry and stakeholders will give them highly attractive skills for transforming their ideas to implementation.

Key Dates

Deadline for on-line applications:	30 November 2025
Compulsory start date for DC 5 & DC 9 applications:	1 March 2026

Key Information

Eligibility

- Supported researchers **must hold a master degree** (i.e. not already in possession of a doctoral degree at the date of the recruitment).
- Researchers who have successfully defended their doctoral thesis but **who have not yet formally been awarded the doctoral degree will not be considered eligible**.
- DC's **must be recruited and enrolled in a doctoral programme** leading to the award of a doctoral degree in at least one EU Member State or Horizon Europe Associated Country.
- Recruited **researchers can be of any nationality.**
- Recruited **researchers must comply with the mobility rule**:

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They must not have resided or carried out their main activity (work, studies, etc.) in the country of the recruiting beneficiary for more than 12 months in the 36 months immediately before their recruitment date.

Compulsory national service, short stays such as holidays and time spent by the researcher as part of a procedure for obtaining refugee status under the Geneva Convention140 are not taken into account.

English Language

Doctoral Candidate (DCs) must demonstrate that their ability to understand and express themselves in both written and spoken English is sufficiently high for them to derive the full benefit from the network training.

Exclusivity

The candidate must be working exclusively for the action.

Recruitment procedure

Recruitment will be carefully executed and monitored in accordance with the principles of the European Charter for Researchers and Code of Conduct for the Recruitment of Researchers and in the DN mobility rules. Following an open, transparent, merit-based, impartial and equitable recruitment procedure which are tailored to each DC offering.

The DC positions will be advertised until all positions are filled. All applications proceed through the central on-line recruitment site via the University of Edinburgh. Candidates apply electronically for one to a maximum of two positions and indicate their preference. All candidates must upload the following documentation:

- Degree Certificate(s) (and translations if not English)
- Transcript/interim transcript (and translation if not English)
- Syllabus/Course description (and translation if not English)
- Research Proposal (maximum 2 pages)
- CV
- English Language Certificate
- Reference contact information (references will only be contacted for shortlisted candidates)

During the application candidates must declare that they are eligible and meet the criteria mentioned under 'Eligibility' above.

To submit an application please follow this link: GENIUS Doctoral Candidate Application Process. Each application will be shortlisted by the relevant recruitment committee. The recruitment committees will bring together diverse expertise and competences, have an adequate gender balance, including members from different disciplines and including representatives from industry. All members are adequately trained.

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Once shortlisted the selected candidates will be invited to an online interview with the relevant recruitment committee. The assessment will be done by the recruitment committee following a homogeneous assessment criteria based on each DC position.

All shortlisted, DC applicants will be notified regarding the success of their application. The selected DCs are to start their research as quickly as possible in line with the specific requirements of the hiring Institute's Human Resources department and in line with all provisions for VISA etc. All DCs must have started by 30 September 2026. Below you will see a full list of the 15 PhD positions that are open.

Applications are invited for two PhD positions ("Doctoral Candidates", DCs) at Politecnico di Torino MSCA-DN 2024: GENIUS

Information relevant to both positions

Host Institution:	Politecnico di Torino
Main supervisor:	Marco Barla (contact: marco.barla@polito.it)
Researcher Profile:	First Stage Researcher (R1)
Type of Contract:	Temporary Job
Status:	Full-time
Duration:	36 Months
Funding:	Horizon Europe (HORIZON) Marie Skłodowska-Curie Actions Doctoral Networks (MSCA-DN)
Marie Curie Grant Agreement Number:	101226708
Gross Salary:	**Living allowance:** 3820 euro/month (see section 1.1. of the MSCA Work Programme). This amount is adjusted via a correction coefficient based on the country in which the researcher is recruited (see Table 1 of the MSCA Work Programme). **Mobility allowance:** 710 euro/month. **Family allowance:** if applicable and depending on the family situation: 660 euro/month. *Specific regulations of each recruiting institution will also apply.*
Benefits:	Fully funded 3-year PhD position Tuition fees covered Travel and conference participation budget Access to state-of-the-art laboratories and computing facilities International and interdisciplinary research environment

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	Secondment of 3 to 12 months to other network partners or associated partners
Is the Job related to staff position within a Research Infrastructure?	No

The Current PhD (DC) Positions

DC 5: Development of specific design tools or the design of EGs.

Aim	Development of specific tools to support the designer of EGs by the implementation into a customed software that will provide a user-friendly interface and support for practitioners at the design analysis stage.
Specific Objectives	(1) Upgrading and generalisation of current preliminary design methods to account for more general conditions (geometry of the installation, thermo-hydro-geological and geothermal properties of the ground). (2) Implementation into a specifically developed software that allow the user for inputting all the needed parameters and obtaining a preliminary outcome of the EG installation (heat exchanged, sizing of the system, dimensioning of the heat pump). (3) Testing software against current design practice based on numerical modelling.
Secondment	▪ Geosolving Srl (Italy) ▪ University of Lille (France)
Knowledge Skills and Experience	
Essential	▪ If non-native speaker, being able to provide proof of English proficiency at the time of appointment (https://www.ed.ac.uk/studying/international/english) ▪ Being able to provide proof of meeting the Mobility Rule (The candidate must not have resided or carried out their main activity—work, studies, etc.—in the country of the recruiting beneficiary for more than 12 months in the 36 months immediately before their recruitment date). ▪ Must not be in possession of a doctoral degree on the recruitment date

DC – 9: Integration of low temperature thermal energy with district heating systems.

Aim	The main objective is to investigate the integration of the heat produced by EGs into low temperature district heating systems.
Specific Objectives	(1) Assess the feasibility of integrating EGs with low temperature district heating system. (2) Analyse the potential of urban energy tunnels (and other EGs) for

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	geothermal heat utilization urban areas. (3) Evaluate technological solutions for integration with existing building infrastructure. (4) Conduct feasibility studies for selected European cities.
Secondment	▪ IREN (Italy) ▪ University of Edinburgh (United Kingdom)
Knowledge Skills and Experience	
Essential	▪ If non-native speaker, being able to provide proof of English proficiency at the time of appointment (https://www.ed.ac.uk/studying/international/english) ▪ Being able to provide proof of meeting the Mobility Rule (The candidate must not have resided or carried out their main activity—work, studies, etc.—in the country of the recruiting beneficiary for more than 12 months in the 36 months immediately before their recruitment date). ▪ Must not be in possession of a doctoral degree on the recruitment date

Other PhD Positions within GENIUS and contact.

To view the full PhD Positions of GENIUS, please follow the link here: GENIUS LinkedIn

As mentioned in the 'Recruitment Procedure' all applicants can apply up to a maximum of two positions.

For further information, please either contact the main supervisor listed above or email our central email: genius-dn@ed.ac.uk

Disclaimer

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