GENIUS
DOCTORAL NETWORK ON
ENERGY GEOSTRUCTURES

Funded by
the European Union

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

UGA
Université
Grenoble Alpes

PhD Positions at University Grenoble Alpes

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www.genius-dn.eu

GENIUS - MSCA Doctoral Network: Overview | LinkedIn

This project is funded by the European Union as part of the Horizon Europe programme, **Marie Skłodowska-Curie Actions Doctoral Networks (MSCA-DN) 2024** and under the Agreement number 101226708

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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:	31 November 2025
Compulsory start date for all applications:	30 September 2026

Key Information

Eligibility

- Supported researchers **must 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**.
- Doctoral Candidate (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 University Grenoble Alpes MSCA-DN 2024: GENIUS

Information relevant to both positions

Host Institution:	University Grenoble Alpes
Main supervisor:	Alice Di Donna (alice.di-donna@univ-grenoble-alpes.fr)
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:** 4735.81 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

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	International and interdisciplinary research environment 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 4: Use of machine learning tools for estimating EGs performance.

Aim	The aim of this project is to investigate the possibility to use machine learning techniques to predict the behaviour of EGs in terms of heat exchange and help in the optimisation of their functioning.
Specific Objectives	(1) Collect monitoring and numerical data on different EG types and different functioning scenarios (heating-cooling modes, different external and climatic conditions). (2) Define input and output parameters adapted for the evaluation of the heat exchange of EGs, and design a model based on artificial neural networks. Train models and check their performance on available data. (3) Use the models to predict the performance of EGs under different future scenarios (change in climatic conditions, temperature, activation modes, etc).
Secondment	▪ Politecnico di Torino (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
Desirable	▪ A good knowledge in design and basics of geotechnical engineering. ▪ A strong motivation for numerical modelling/analysis ▪ Appreciate coding and computational geomechanics

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DC 6: Energy tunnels to reduce the costs of ventilation in tunnels.

Aim	The objective of this project is to investigate the possibility to use energy tunnels to control the internal air temperature, thus limiting the ventilation costs. The solution is of interest for hot tunnels, such as deep mountain tunnels.
Specific Objectives	(1) Designing and installing an experimental site in which adapted energy segments will be implemented with monitoring system. Monitoring, analysing and interpreting the measurements obtained from the experimental site. (2) Developing a numerical model, to be validated against the monitoring data. (3) Cost-benefit analysis to assess competitiveness of the technology compared to standard ventilation systems
Secondment	▪ Politecnico di Torino (Italy) ▪ TELT: Tunnel Euralpin Lyon-Turin (France / Italy)
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
Desirable	▪ A good knowledge in design and basics of geotechnical engineering. ▪ Proactive and motivated to take initiatives ▪ Good communications skills to interact with the engineering world for the installation of the experimental site

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

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