

SPIN

MONITORING A
RESTLESS EARTH

SPIN ESR 4.4: Distributed Acoustic Sensing and Volcano-seismology

Host institution: GFZ Helmholtz Centre Potsdam



Supervisors:

main supervisor: Philippe Jousset

co-supervisor: Prof. Charlotte Krawczyk

Application deadline: 1st April 2021. Position remains open until filled.

Starting date: 1st July – 1st October

General information

This PhD position is one of the 15 Early Stage Researcher (ESR) positions within the SPIN project (<http://spin-itn.eu>). SPIN is an Innovative Training Network (ITN) funded by the European Commission under the Horizon 2020 Marie Skłodowska-Curie Action (MSCA).

SPIN will focus on training 15 PhD candidates in emerging measurement technologies in seismology. We will research the design of monitoring systems for precursory changes in material properties, all while optimizing observation strategies. The unique interdisciplinary and inter-sectoral network will enable PhDs to gain international expertise at excellent research institutions, with a meaningful exposure of each PhD to other disciplines and sectors, thus going far beyond the education at a single PhD programme. For further information on the project, please consult our website at: <http://spin-itn.eu>.

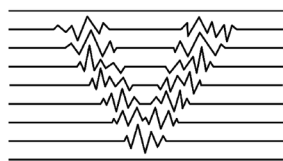
Project description

Research in volcanology focuses on the understanding of complex volcanic processes and their relationship with volcanic phenomena and the volcanic structures. Explosive activity at active volcanoes produces acoustic waves in the atmosphere, seismic waves in the subsurface and permanent deformation. In the heterogeneous volcanic edifice the seismo-acoustic frequencies document particularly the complex ground mechanical behaviour. Using a set of multiparametric dataset acquired Etna volcano (Italy), including infrasound, seismic and fibre optic cable Distributed Acoustic Sensing data, we will understand better the structural and dynamic nature of the seismo-acoustic wavefield. Within SPIN, the ESR will analyse and attempt to model the complex behaviour of rock response with this unprecedented dense spatial information. This may possibly lead us towards understanding of non-linear processes in the ground. The results will be aided with laboratory observations and may improve time dependent assessment of natural hazards related to material failure and ground response.



Funded by the European Union's Horizon 2020 research and innovation programme
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Required skills and experience

We welcome applications from candidates who fulfill the following criteria:

- A completed research-oriented university degree, such as a Master's degree or BSc Hons, in a relevant field (e.g. Geophysics, Physics, ..) The PhD enrollment requirements will depend on the hosting institute, please refer to the individual project descriptions and institute webpages.
- An outstanding academic track record
- An good command of English, both verbal and written
- Dedication and enthusiasm for research, combined with scientific curiosity, reliability and the capacity to teamwork in an interdisciplinary environment.
- Background in seismology wave propagation
- Strong programming ability (python, matlab)
- Motivation to work in an interdisciplinary and international team
- Willingness for research visits of several weeks at partner institutions of SPIN

Please ensure that you fulfill the following **eligibility criteria** for ESR (Early Stage Researcher) positions in H2020 MSCA-ITNs, as ineligible candidates cannot be considered:

<https://spin-itn.eu/recruitment/#eligibility-criteria>

What we offer

- Integration in a versatile European Training network with dedicated workshops, research visits and high level of intellectual exchange with your peers and supervisors
- Dynamic, interdisciplinary and international research environment at GFZ
- Close supervision and technical support

We offer a full time position with 39 working hours per week. Salary depends on family status and will be around 2000€/month net.

Application Procedure

The **application deadline** is 1st April 2021. Application evaluations will start immediately, and will continue until all positions are filled. We wish to reflect the diversity of society and we welcome applications from all qualified candidates regardless of personal background. The selection will be exclusively based on qualification without regard to gender identity, sexual orientation religion, national origin or age.

Applications must include:

- A cover letter in which you describe your motivation and qualifications for the position.
- A CV including relevant competences, skills and publication list, if applicable
- Copies of degree certificate(s) and transcripts of records for previous studies (Bachelor and/or Master). Please indicate expected date of graduation if your Master's degree is not completed
- Contact information of two references
- Completion of the SPIN application form: <http://uhh.de/min-spin-apply>

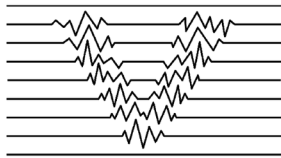
Please use the GFZ application form provided at <https://www.gfz-potsdam.de/en/career/job-offers/>

Applications including the requested documents should additionally be sent in **one single pdf file** with filename `SPIN_YourLastname_YourFirstname.pdf` to spin-applications.min@uni-hamburg.de



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Data handling

By applying to a PhD position, you agree that all data concerning your application may be stored electronically and distributed among the supervisors involved in the selection procedure within the MSCA ITN SPIN. If you do not agree, your application can not be processed further, due to the project's centralised recruitment process. The data are used solely for the recruitment process and we do not share information about you with any third party.



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