



GNeuS – Global Neutron Scientists

NEWSLETTER DECEMBER 2022

	3 calls: 2021, 2022, 2023		45 positions (15 per call)		24-month contract		8,5 M€ budget
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GNeuS takes off and picks up speed!

The first call for the GNeuS program was very satisfactory: we received a number of very good applications and, thanks to the commitment of our international reviewers, excellent candidates and projects were selected. Most of them have already started their work at MLZ and the three partners.

What we could not foresee, however, was the sharp increase in processing time of some visa applications by the German embassies - obviously there must be a backlog due to the Covid pandemic. The GNeuS management team is working hard on measures to further accelerate the recruitment process.

The second call for applications has already been issued and the response so far is very promising. **We expect to receive many excellent applications again by the deadline of 18 January 2023 at 18:00 CET.**

Already now we can say that GNeuS is a real win-win situation for the fellows and the institution: The fellows benefit from the strong support of their contact persons and the established international contacts, while the diversity of projects and fellows is an enormous enrichment for MLZ. **We look forward to the further development of GNeuS!**

Thomas Brückel, GNeuS Coordinator



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This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under the Marie Skłodowska-Curie Grant Agreement N°101034266.



One year of GNeuS path

The GNeuS COFUND project started officially on September 1st, 2021. On that date the GNeuS official website was launched and is the main communication mean towards our public. www.gneus.eu

In the first 14 months of its lifetime, the GNeuS Management Team successfully implemented the planned actions leading to the selection of 15 fellows under call n.1 (closed on 15th January 2022). The call n.2 has started on November 1st, 2022.

Call 1 results

The GNeuS COFUND call 1 was officially open from November 1st, 2021 and closed on January 15th, 2022. The assessment of the 30 received applications was performed in a short time as the results were communicated to selected fellows on April 19th, 2022.

Among the 30 applications submitted to the Call N. 1, 18 of them were based upon the suggested topics while 12 applicants did submit their own research projects.

Out of the 21 applications admitted to the second step, the first 15 ones were selected for a contract. The gender balance of the selected candidates is well respected with 8 females and 7 males respectively,

11 fellows already started between August 2nd and December 1st, 2022.

Call 1 Fellows presentation

A communication campaign started in November 2022 to present the call n.1 selected fellows, their background and their research projects ambition and expected impact.

The interviews are published on GNeuS Website: <https://gneus.eu/>. The first two interviews are attached to this newsletter.



GNeuS Programme is proud to introduce you to its Fellows, selected within Call 1 in 2021



Few words about you and your research project

Namaste!

I am Sheetal, and I recently joined **Jülich Center for Neutron Science at MLZ, Garching** as a post-doc fellow in the Dr Yixi Su lab group as a part of the GNeuS project.

My research investigates the influence of correlated disorder in frustrated magnetic systems by combining systematic solid-state synthesis with controlled disorder and a range of advanced neutron scattering techniques.

My non-academic secondment is planned at Promoscience Italy, where I will work on the development of professional skills includes publicizing the research work, building contacts beyond the research community, etc.

What is your background?

How have you heard about GNeuS?



Before joining GNeuS, I worked as an Integrated-PhD student at the **Indian Institute of Technology Mandi, India**, where I investigated the physical properties of chemically disordered pyrochlore oxides and explored the possible avenues to tune the disorder via external perturbations (e.g. magnetic field and non-magnetic substitution). If you are interested, please read at [Link 1](#) / [Link 2](#).

I had the opportunity to participate in the 23rd JCNS Neutron Lab Course during my PhD studies, which gave me a broad perspective of the field of neutron scattering and its applications. Later, in mid-2021, I received an email from Dr. Reiner Zorn, the coordinator of the JCNS Lab Course, informing about the available post-doc positions under the GNeuS project. **I would like to thank JCNS for providing me with the opportunity to earn lab-course certification and meeting the requirements for this call, as I had no prior neutron experience.**



Why did you apply specifically on GNeuS?

GNeuS is a well-planned program that acts as an impetus for the scientist's career. The guidance and supervision from the expert team will be a golden platform for me to strengthen and broaden my academic and social horizons.

This program gives me access to **several new facilities** as well as assists me in establishing a solid foundation for my career as a researcher, allowing me to explore new experimental, innovative ideas while also collaborating with people of diverse expertise and industrial backgrounds.

Through interdisciplinary and intersectoral experience, I will gain broad perspectives and a variety of research and innovative methodologies. I hope that this platform will help me to develop global networks, better employability, expand my career options in academia and beyond, and acquire various new transferable skills that will aid in bringing such new facilities to future research.

What impacts do you expect from the GNeuS fellowship?



The proposed project focuses on **exploring several new aspects of frustrated magnetism**. My Ph.D. research was focused on tuning the disorder in pyrochlore zirconates; however, the data interpretation was confined to macroscopic bulk studies, and the role of disorder and the true nature of disorder-induced ground state remains unknown. It is one of the central issues of emerging field of frustrated magnetism. The proposed research may open up an intriguing route for the potential realisation of quantum spin liquid, which can be an ideal quantum material platform for the exploration of future quantum technologies.

The GNeuS project gives me a broader aspect, introducing me to more advanced and resolved techniques which will extend my horizon of knowledge and experience in the field of my interest.



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Few words about you and your research project

I am a **nuclear physicist** specializing in applied nuclear metrology. I received my PhD from **Université libre de Bruxelles and SCK-CEN in Belgium**. Then I joined **Commissariat à l'énergie atomique et aux énergies alternatives (CEA)** in France.

The project I proposed within GNeuS, and that was selected within Call n.1, is devoted to development of a **fast neutron inelastic scattering technology for non-destructive characterization of rare-earth elements in magnets**. The major scientific method to carry out the research is based on experimental activities with the **FaNGaS** (Fast Neutron induced Gamma-ray Spectrometry) instrument installed at the **Heinz Maier-Leibnitz Zentrum (MLZ) in Garching**, compact neutron sources developed by the project **secondment Dynaxion (Netherlands)** and Monte Carlo simulations.

The project is hosted by **Jülich Center for Neutron Science** and supported by industrial partners, such as **Fraunhofer IWKS** and **AixACCT System GmbH**.



Why did you apply specifically on GNeuS?

I decided to candidate for the GNeuS Call n.1 as I wanted to continue my development as **an expert in the domain of applied nuclear metrology**.

The GNeuS programme offers a possibility to acquire new knowledge and skills. It is also ideal for me to **make a contribution and promote application of neutrons in industry and science**.

What is your background?

How have you heard about GNeuS?



I have a background in **different domains of applied nuclear metrology**. During my career in prominent universities and research institutions I have acquired knowledge and expertise with **various passive and active non-destructive assay methods** (X- and gamma-ray spectrometry, neutron interrogation, photofission), particle accelerator technologies, detection methodologies, neutron and X- and gamma-ray detectors, Monte Carlo simulations.

During my PhD project at Université libre de Bruxelles and SCK-CEN, I **developed two codes (MCSIGMA and CAMILA) for determination of uranium and plutonium isotopic composition**, as well as different algorithms for X- and gamma-ray spectra analysis. At CEA, I worked on the EU H2020 project [MICADO](#) devoted to designing of a mobile LINAC-based system for characterization of nuclear waste packages by non-destructive photofission assay technique. A summary of my research can be found by this [link](#).

I was informed about the GNeuS program and opportunities by Dr. Eric Mauerhofer, whom I know from his joint work with CEA.

What impacts do you expect from the GNeuS fellowship?



Within GNeuS, I expect **improving the portfolio and sustainability of neutron technologies** by developing a fast neutron inelastic scattering analytical technique that will allow tackle the existing challenges and address the industrial needs, such as fast characterization of bulk magnet samples in view of their recycling. Such tasks represent a strategic importance because **rare-earth magnets are a critical component of modern technologies** (e.g. energy systems, electric and hybrid vehicles, consumer electronics etc.).

The planned activities include participation to conferences in the domain of radioanalytical techniques and accelerator applications, dissemination of the achieved results in peer-reviewed publications, fostering of the Interdisciplinarity and Intersectorality of the research, as well as **collaboration with industrial partners**. The proposing fast-neutron based technology can be extended to other potential domains, such as homeland security (detection of illicit/dangerous objects in freight cargo) for which fast-neutron based non-destructive analysis techniques represent a promising solution to interrogate voluminous objects and extract an array of qualitative and quantitative information. **This pushes forward the neutron-based technology, its applications in various markets and fosters sustainability in neutron science.**

Neutron sciences are accelerating at MLZ!



CALL 2 OPEN SINCE 1st November, 2022

CALL 2 CLOSURE: 18th January, 2023



Possession of a doctoral degree or equivalent research experience



1 original publication in a peer-reviewed journal



Full application package submitted



Background in neutron scattering techniques



Not more than 12 months in the last 3 years in Germany



At least one secondment in a non-academic organisation

Applicants have free choice of their research topics, hosting organizations and supervisors. Once selected, they will build the next generation of neutron scientists able to answer major scientific challenges.

[Guidelines for Applicants](#) available on www.gneus.eu

Call n.2 webinar

A webinar to present the call opportunities and conditions and answer candidates' questions was organized on November 22nd, 2022. some of the GNeus topics were presented.

The session was recorded and the video is made available to all the registered candidates in the Documents section of the my.gneus portal (application portal).



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Neutron sciences are accelerating at MLZ!



Meet us

The GNeuS project has been already widely advertised with the following presentations:

- At the Italian Society of Neutron Spectroscopy, at the Annual SISN Congress on September 15th, 2022 – online presentation.
- At the International Small-Angle Scattering Conference SAS2022 on September 16th, 2022 – plenary presentation.
- At congress of the French neutron society on November 14th, 2022 – poster presentation.
- At the Scandinavian Neutron Scattering Association, on December 12th, 2022.

Further presentations to come in 2023.

GNeuS on social media!

GNeuS has a strong presence on social media and on the web. Follow us to receive the latest news.

www.gneus.eu



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