



GNeuS Programme is proud to introduce you to its Fellows, selected within Call 3



Few words about you and your research project

My GNeuS project is about **protein crystallization and macromolecular instrument in the High Brilliance Neutron Source (HBS)**, that I will implement within Forschungszentrum Jülich.

Neutron protein crystallography requires a highly brilliant beam in order to measure very small biological single crystals. Additionally, these crystals have a large unit cell size, which **may be beyond 200 Å in at least one dimension**. This makes it challenging for neutron beamlines to accommodate this type of measurement. **The Jülich High Brilliance Neutron Source is a potential future source** with optimization potential from the source to the sample.

As part of this project, the design and simulation of a macromolecular diffractometer at the 24Hz TMR station with a long neutron guide using a cold moderator is planned.

In parallel, I will work on crystallizing streptavidin and collecting room-temperature neutron diffraction data. The structural information obtained, especially on hydrogen/deuterium positions, will help reveal the nature of the exceptionally strong streptavidin-biotin interaction. This hands-on crystallography work directly supports the instrument design by providing real experimental constraints and figures of merit.

My secondments at Mirrotron Ltd. (Hungary) will broaden my technical expertise in neutron instrumentation and detector technologies, while strengthening my international collaborations within the neutron science community.

What is your background?

How have you heard about GNeuS?



My academic background is in **neutron optics using thin-film technologies**. During my PhD at Tongji University, I worked on the development of polarized neutron devices, including **Fe/Si supermirrors, Ni/Ti neutron guides, and FeSi neutron flippers**.

My work involved thin film preparation, characterization, and extensive Monte Carlo simulations of neutron devices **using tools such as McStas**. This experience has given me a solid foundation in neutron transport, instrument component design, and simulation optimization.

I learned about the GNeuS project from one colleague who participated in Call 1. When I explored the topics offered, I **found the project on High Brilliance Neutron Source (HBS) instrument design particularly appealing**.

Because my expertise naturally fits the requirements of the project, and the research direction strongly motivated me, I decided to apply.



Why did you apply specifically on GNeuS?

What impacts do you expect from the GNeuS fellowship?



I applied to GNeuS because the programme focuses on neutron instrument development, **which aligns directly with my previous research background**. The HBS project I am currently working on in Jülich is **highly innovative** and is expected to contribute to the **next generation of neutron sources**. Joining GNeuS allows me to strengthen this work within a structured, high-quality training environment.

GNeuS is a **carefully designed programme** that supports the career development of young scientists. It provides access to cutting-edge research facilities, comprehensive training courses, and the opportunity to explore new ideas within an international community.

I am particularly attracted by the **strong interdisciplinary and intersectoral components of the programme**, which will allow me to collaborate with experts from both academia and industry.

Through these experiences, I expect to **broaden my research skills, deepen my scientific perspectives, and build a strong foundation for my long-term career in neutron science**.

Through the GNeuS fellowship, I expect to **advance my work on macromolecular neutron crystallography and neutron instrument design**. The program will allow me to complete the macromolecular instrument design for HBS, aiming to deliver comparable neutron flux at lower cost and contributing to the development of next-generation neutron sources.

For my biological research, GNeuS will help me **improve protein crystallization strategies**, strengthening my ability to collect and analyse high-quality room-temperature neutron data.

In addition, the fellowship provides valuable opportunities to **build a strong professional network** within the European neutron community through conferences, workshops, and collaborative activities.

Overall, GNeuS will **broaden my scientific skills, enhance my research capabilities, and support my long-term career development in neutron science**.

