



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



Few words about you and your research project

My name is **Zehua Han**, and I am from China. My previous work focused mainly on **Small-Angle Neutron Scattering (SANS) instrumentation and techniques**. Part of my earlier research also involved **SANS applications in soft matter**, although not in great depth.

My current research topic concerns a **promising material** that may serve as an **alternative proton-exchange membrane for next-generation batteries**. We are now trying to use SANS together with **Quasi-Elastic Neutron Scattering (QENS)** to investigate both the static structures and the molecular dynamics inside the membrane, aiming to relate these structural and dynamic features to its performance. We hope that this work can provide useful insights for the development of future batteries.

My secondment is the **Takasaki Institute for Advanced Quantum Science (QST Takasaki)**. My co-supervisor, Prof. Zhao, is an expert in electrochemistry. She can provide valuable guidance on various aspects of the project, including assisting with specific measurements and helping to interpret our experimental results.

What is your background?

How have you heard about GNeuS?



I previously worked as a postdoctoral researcher at the **China Spallation Neutron Source (CSNS)**, where I participated in the full commissioning process of the VSANS instrument. This work covered all aspects of the instrument, including system commissioning, data reduction, and data analysis, etc.

I first learned about the GNeuS programme through an email from neutron@neutronsources.org. However, at that time I had already decided to take the position at CSNS, so I did not apply during Call 1.

Before finishing my work at CSNS, I met Prof. Aurel—who later became my GNeuS supervisor—at a conference. We had several very pleasant discussions, and he encouraged me to apply for the programme to work with him.

I applied, and fortunately, I was selected.



Why did you apply specifically on GNeuS?

What impacts do you expect from the GNeuS fellowship?



There are two main reasons. First, **Aurel is a highly experienced SANS instrument scientist**, with strong expertise in both SANS instrumentation/technology and SANS applications. I believe I can learn a great deal from him, which will help me grow into a qualified instrument scientist in the long run.

Second, **FRM II is a renowned neutron source with a long history**. I am confident that working here will provide valuable experience that will significantly support my future career development.

And of course, this programme also gives me the opportunity to **meet and connect with many young researchers** from around the world, which is very appealing as well.

I think this can be viewed from two perspectives.

Regarding the research itself, I hope that with the guidance of Aurel and Zhao, and with support from our collaborators, we can not only clarify the structures and dynamics within our samples, but also **establish methodologies that can be broadly applied to similar systems**.

As for my personal career development, I hope to grow quickly, **deepen my understanding of both SANS technology and SANS applications**, and ultimately equip myself well for securing my next position.

