

Call for Input to the ESS Instrument Roadmap

*Please note change of deadline: in order to provide the teams additional time to finalize their proposals we will prolong the deadline for proposal submission to **March 27 2026**.*

ESS is pleased to invite the community to join us in developing a roadmap for instruments beyond the 15 currently under construction. Together we will explore the options for expanding the instrument suite to build a scientific portfolio for the decades to come. In order to do that, we hereby invite teams across Europe to provide scientifically driven conceptual ideas for instruments. We will accept proposals for one year, Feb 3 2025 – **March 27 2026**. After that, a number of instrument ideas will be selected with the help of experts from around the community, and for each selected idea a consortium will be formed. This means that even if your proposed instrument idea was not selected, you will have a chance to join an instrument consortium to further develop one of the selected instrument ideas to a detailed instrument concept. In this way, we aim to build the roadmap for future neutron science at ESS and in Europe together.

Context

Like all major facilities, ESS will have a continuous program to upgrade and expand as a part of future steady-state operations. As the initial suite of 15 instruments is being installed and commissioned, we are now initiating a process that will enable ESS to stay relevant and globally competitive, delivering excellent science for decades to come. With this call for input we are beginning to create a roadmap, the aim of which is to fill the gaps in the ESS instrument suite in terms of both scientific capabilities and capacity.

Creating a Roadmap Together

Since the first calls for instruments, the ESS organisation has matured and ESS has evolved into an integrated part of the European neutron community. Therefore, this next batch of instruments will be managed differently than the first 15, and more similarly to other large-scale facilities. This first step of identifying instrument ideas for the roadmap is open, benefitting from the scientific knowledge and instrument know-how present in the community to collect the best ideas.

After the selection of which instrument ideas to move forward with has been made, consortia will be formed around each instrument to develop them further to mature instrument concepts. This will be a strongly collaborative step, including the proposers as well as other interested parties, utilizing the joint experience and expertise of the European neutron community.

Review

The proposals received in this call for ideas will be reviewed by expert committees and internally by ESS. The proposals will be considered in relation to rescoping current instruments, and the possibility of merging similar concepts will be considered. Strategic considerations such

as potentially expanding hall space will also be a part of this process. ESS will make a decision on which instrument ideas to move ahead with.

Building and Funding

The scheduling of building these instruments hinges on funding. These projects will be implemented during steady-state operations, and that budget has not yet been established. When the time comes to build the instruments, we will make use of the strong competence in designing and constructing instruments that has been developed at ESS. There will be mechanisms for contributing collaboratively in the construction process, but this will constitute a smaller part of the instrument construction projects compared to the first 15. ESS reserves the right to stop any instrument project due to funding, technical or other issues that may arise along the way.

The focus of the current call for input is to identify conceptual instrument ideas to make up a roadmap for strong and relevant science at ESS in the future, which will serve as a concrete case for funding and which will be ready to be implemented once funding is identified. ESS will not cover costs incurred at the proposing institutes for the development of conceptual instrument ideas.

How to Prepare and Submit a Proposal

- The Call for Input is open February 3 2025 – **March 27 2026**. Please note new date.
- Interested parties in ESS member countries are welcome to submit proposals. Collaborators from other countries may also be listed, but not as main proposers.
- Make sure to contact us well before you submit a proposal, see below.

Propose an instrument concept, not a fully designed instrument. Focus on scientific capacity and capability, and explain how your concept would complement the current instrument suite at ESS as well as the global neutron landscape, and how it would enable ground-breaking science. Explain how technical solutions will make your concept feasible and excellent, but do not provide a full instrument design.

A proposal should include the following:

1. Executive summary
2. Scientific case
 - 2.1. Key scientific drivers
 - 2.1.1 Potential societal relevance of the science case
 - 2.2. Potential new science
 - 2.3. Potential user community
3. An initial technical overview of the proposed instrument, discussing technical feasibility.
4. An explanation of how the concept makes use of the ESS long-pulse source, if relevant.

5. Plans or requirements for sample environment and laboratory access.
6. Proposed location of the instrument at the ESS facility including motivation.
7. Gap analysis in terms of both capability and capacity, in relation to ESS and the global facility landscape.
8. Comparison to other similar instruments in the world, if possible.

Page limit: 12 pages.

E-mail your proposal to instrumentroadmap@ess.eu, with the subject line "Proposal submittal" no later than March 27, 2026.

Available Beamports and Space in the Instrument Halls

[Available beamports and space in the instrument halls.](#)

This document shows a possible long-term beamline configuration, including a possible future expansion of hall space. These slots may be modified to optimize space depending on instrument design. While not all these slots will be made available for this call for input, the graphic provides a view of possibilities and constraints as a basis for discussion.

Instruments Currently Under Construction

[Information about the 15 instruments currently under construction at ESS.](#)

Contact us First

Prior to submitting a proposal, please contact the appropriate Head of Division for a discussion on feasibility.

[Pascale Deen](#), Head of the Spectroscopy Division

[Mikhail Feygenson](#), Head of the Diffraction and Imaging Division

[Andrew Jackson](#), Head of the Large-Scale Structures Division

For Fundamental Physics, contact [Pascale Deen](#).

For general questions regarding the Call for Input, contact instrumentroadmap@ess.eu.