

Call for Expression of Interest: ELI Mission-Based Access Programme in Inertial Fusion Energy (IFE)

The **Extreme Light Infrastructure ERIC (ELI ERIC)** invites researchers to submit an **Expression of Interest (EOI)** for its **Mission-Based Access Programme** focused on **Inertial Fusion Energy (IFE)**. This programme provides a unique opportunity to conduct extended experimental campaigns at ELI's cutting-edge laser facilities, addressing key scientific and technical challenges related to laser-powered IFE.

Deadline for submission of Expression of Interest: 28 February 2025, 5:00 PM CET

About the Programme

The ELI facilities support research with significant socio-economic impact potential, aiming to demonstrate and capitalise on ELI's capacity to address critical challenges in laser-powered IFE. This program seeks to:

- Foster collaboration between researchers from academia, research institutes, and industry
- Tackle complex, multidisciplinary problems
- Catalyse innovation through public-public and public-private partnerships.

Programme Highlights

Scientific Excellence and Societal Impact:

- Project proposals must exhibit scientific excellence and demonstrate potential contributions to solving scientific and technical challenges in laser-powered IFE. The project is expected to result in open-access publications and data and make a meaningful contribution to advancing knowledge and progress in the relevant scientific field and community.

Extended Access:

- Selected applicants will be granted dedicated beam time over an extended period of time of up to 3 years, allowing them to undertake ambitious and complex research projects that may involve multiple experiments throughout the duration of the project.

Priority Research Areas:

- Priority research topics for the programme, as identified during discussions with over 100 academic and industrial experts at the ELI Laser-Induced Fusion Workshop held in November 2023, include:
 - **Laser plasma interactions and direct drive**
 - **Laser driven high energy density and warm dense matter**
 - **Laser development for fusion applications**
 - **Development of instrumentation: diagnostics, targets**
 - **Other relevant topics.**

Collaborative Partnerships:

- Applicants are encouraged to partner and form multidisciplinary teams combining expertise to address multifaceted challenges. The Expression of Interest should include an initial indication of the consortium, but it should also allow for the possibility of expanding the consortium when preparing the full proposal.
- Research teams should collectively demonstrate a strong track record and a clear commitment to disciplines essential for maximising the project's impact. Public-private sector partnerships are encouraged.

Co-Funding and Resource Contributions:

- **Applicants are expected to contribute resources for the delivery of the project, either in cash and/or in kind.** This contribution may support the development of ELI instrumentation or methods to enhance the project's impact. Such development should align with ELI's overarching strategy and priorities.
- ELI ERIC will assess resource requests as a relevant component of the overall project proposal.

The possible funding sources include:

- Investments or contributions from industry.
- National or European Commission project funding.
- Co-development with partner organisations
- Institutional contributions.

Assessment Criteria

Proposals will be evaluated based on:

- **Scientific excellence**
- **Relevance to laser-driven fusion physics and applications**
- **Applicant team's quality**
- **Level of resource contributions**
- **Socio-economic impact potential.**

Application Process

The application process is designed in two stages to support and enhance the collaborative nature of the programme.

1. Expression of Interest

The deadline for submitting the **Expression of Interest (EOI)** is **28 February 2025, 5:00 PM CET**. Submissions can be made by completing the **EOI form available at the [link](#)**.

Information on ELI Facilities' instruments is available on the [ELI User portal](#) and [ELI-NP User portal](#).

To provide further details about the programme and the first application step, ELI Management will organise an **online meeting with ELI ERIC experts on 21 January 2025, 4:00 PM CET**.

Interested researchers should submit an Expression of Interest (EOI) of no more than 4 pages, containing:

- Project title and abstract
- Coordinator
- Consortium members
- Challenges, objectives, and expected results of the project
- Proposed ELI facility, point of contact, and instrumentation.
- Expected duration of the project
- Estimation of required resources and applicant's contribution.

2. Full project proposals

After the EOIs are submitted, ELI ERIC Management will organise meetings with applicants to **provide feedback**. These meetings should be completed by the **end of March 2025**.

Applicants proceeding to the second stage will be invited to submit their **final project proposal by 30 May 2025**.

For additional information about the Programme and Eoi, please contact the ELI ERIC IFE Program Coordinator at IFE@eli-laser.eu.

We strongly encourage researchers with ambitious and impactful ideas to participate in this exciting initiative. By working together, we can leverage ELI's world-class Facilities to push scientific boundaries and accelerate progress toward realising inertial fusion energy.