

European XFEL Project Team

c/o Deutsches Elektronen-Synchrotron DESY
in der Helmholtz-Gemeinschaft,
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Hamburg, 06 September 2006

Dear Colleague

I am pleased to send you a call for expressions of interest in contributing to the construction of the European X-ray Free Electron Laser Facility (XFEL). Such contributions might consist

- in providing technical components for the accelerator complex or the experimental stations of the facility as well as personnel needed for the installation of such components and their integration on site, or
- in making available personnel for specific tasks during the construction phase.

If accepted, the components delivered and/or the support provided in form of personnel would be counted as part of the respective country's contribution to the construction costs of the XFEL. The XFEL budget book will be used to determine the value of a contribution.

Please note that this call shall probe the interest and is not a call for full proposals. Full proposals will be required in a second step. More details can be found in the attached document.

Yours sincerely

Massimo Altarelli

Call for Expressions of Interest in providing in-kind contributions for the construction of the European X-ray Free Electron Laser Facility

1. Background

The XFEL is a new international large-scale research infrastructure to be built in the north west of Hamburg, Germany. It shall enable *extremely brilliant, ultra-short* pulses of *spatially coherent* X-rays with wavelengths down to 0.1 nm, and to be exploited at ten experimental stations. Operated as a user facility, the XFEL is expected to provide novel results of fundamental importance in material sciences, plasma physics, planetary sciences and astrophysics, chemistry, structural biology and biochemistry, with significant effect on applied and industrial research.

So far representatives of thirteen countries (Denmark, France, Germany, Greece, Hungary, Italy, China, Poland, Russia, Spain, Sweden, Switzerland and the UK) have signed a Memorandum of Understanding (MoU) for the preparatory phase, indicating their country's interest in participating in the construction and operation of the facility. The MoU signatories have set up an International Steering Committee governing the preparatory phase of the project, and established a European XFEL Project Team hosted by DESY in Hamburg.

A Convention between the Governments of the participating countries will regulate the international co-operation for the construction and operation of the XFEL. It stipulates that the contributions to construction costs may be paid in cash or in kind. Basic rules and procedures for in-kind contributions are laid down in Annex 5 to the XFEL Convention, which for information is also attached to this call. Currently the contribution rates are under negotiation between the Ministries of Research of the interested countries.

In this context the XFEL Steering Committee aims to clarify

- the form of contributions (cash or in kind) planned by the various MoU Partners and
 - the acceptability (from a technical point of view) of the offered in-kind contributions,
- and therefore asked the European XFEL Project Team to launch a call for expressions of interest concerning the provision of contributions in kind. In parallel the Steering Committee is setting up an In-kind Review Committee to assess the proposals received.

2. Scope of the call and of the answers

2.1 Addressees

Obviously contributions in kind can only be made by organisations or institutes of a country, which is signatory party to the XFEL Convention and thus is committed to contribute to the construction of the XFEL. As long as the Convention is not signed, the Parties to the MoU (see above) are considered as the countries from which contributions in kind can be provided.

Nevertheless, this call will also be sent to institutes of countries, which the Project Team sees as potential parties to the XFEL Convention.

It is possible to submit a joint (consortium) proposal for in-kind contributions from institutes in different countries.

2.2 Subjects

The choice

- of components to be contributed for the construction of the XFEL accelerator complex or its ten experimental stations or
- of tasks for personnel to be made available to the XFEL Company during the construction phase

has to be based on the XFEL Technical Design Report (TDR), which end of July 2006 was approved by the International Steering Committee as the basis for the current negotiations on the construction and operation of the XFEL Facility. The document can be downloaded from the XFEL website (<http://xfel.desy.de/xfelhomepage>). As set out in Chapter 9.3.1 of the TDR, the construction project has been structured according to 37 work packages, combined into six work package groups.

Independently from this general call, the XFEL Project Team recently launched a call for expressions of interest for the development and delivery of *Large Area Pixellated X-ray Detectors* (see also under <http://xfel.desy.de/xfelhomepage>). In that call the financial conditions were not further specified; nevertheless, the detector-related R&D work might qualify as a contribution in kind. Institutes interested in this option should therefore also answer the present general call.

In order to give an idea of what could be a contribution in kind, two items are indicated on which work started in two MoU Partner countries already during the preparatory phase:

- Development of a prototype intra bunch train feedback system for electron beam stabilisation (part of work package 16) by a Swiss institute;
- Research and Development on RF power couplers and industrialisation of RF power coupler series production (part of work package 5) by a French institute.

2.3 Information required

The Expressions of Interest will be assessed by an In-kind Review Committee set up by the International Steering Committee. Information needed for the evaluation will include:

- A brief description of the components to be delivered or tasks to be taken over,
- A list of the laboratories or groups involved in the work,
- Evidence of competence of the team to deliver the specified components (e.g. experience in the construction of similar equipment),
- An indication on whether the competent government agency is aware of (or supports) the submitted expression of interest.

At this stage of the procedure, the Expression of Interest does not need to exceed a few pages.

3. Organisational details

3.1 *Deadline, Address*

Expressions of Interest should be sent by **31 October 2006** to the

European XFEL Project Team
for the attention of M. Altarelli
c/o DESY
Notkestr. 85
D-22607 Hamburg
Germany

3.2 *Contact*

Contact persons for technical issues are, with respect to the

- Accelerator complex: Reinhard Brinkmann, Tel: (+49) (0)40 8998 3197
- Technical Infrastructure: Andreas Schwarz, Tel: (+49) (0)40 8998 2524
- Beamlines, Instrumentation: Thomas Tschentscher, Tel: (+49) (0)40 8998 3904
- Large Area Pixellated X-ray Detectors: Heinz Graafsma, Tel: (+49) (0)40 8998 1678

E-mail according to the scheme: firstname.surname@desy.de

Address for all: c/o DESY, Notkestr. 85, D-22607 Hamburg, Germany.

3.3 *Next steps*

The members of the preliminary In-kind Review Committee are expected to be appointed at the Steering Committee meeting on 10 October 2006. The proposals could then be assessed by the end of the year 2006, which would allow the International Steering Committee at its meeting in January 2007 to decide, which of the expressions of interest should be backed up by a full proposal.

Annex 5 to the XFEL Convention

Basic rules and procedures for in-kind contributions

- (1) In-kind contribution might cover
 - a technical component as well as personnel needed for its installation and integration on site, or
 - personnel made available for specific tasks during the construction phase.
- (2) Special attention has to be paid to the allocation of responsibility, the calculation of the monetary / financial value of the contribution, the problem of under- and over-spending, and the resolution of disputes.
- (3) The in-kind-contribution agreement for each task will contain *inter alia*
 - a technical description and specifications,
 - time schedules and milestones,
 - deliverables,
 - quality control issues,
 - performance testing, acceptance and commissioning,
 - technical and financial control systems,
 - appointment of responsible technical personnel,
 - intellectual property right issues.
- (4) An In-kind Review Committee is set up, composed of one representative per Contracting Party and the Project Team, to propose to the XFEL Management the allocation of in-kind tasks to specific partner institutes for decision by Council.
- (5) The Review Committee seeks to take the best profit of available expertise at DESY and throughout Europe and identifies to this end the possible / potential work packages for in-kind contributions as a function of the available expertise and independent of the location.
- (6) The Review Committee, when evaluating possible allocations of in-kind contributions, will take into account the willingness of the partner institute to make available personnel and experts for the installation and integration of the delivered system as well as for its operation. The conclusion of long-term maintenance contracts may be envisaged.
- (7) The Review Committee will define very early in the process the necessary interface specifications and common standards, in order to extend the field of potential in-kind contributions to any task which has a clear interface with another task, element or component.
- (8) Central coordination for each of the elements is essential and will have to be located where the relevant expertise is available.