

**Prof. Massimo Altarelli**

Chairman of the Management Board

Phone +49 40 8998-1540

Secretary +49 40 8998-4434

Fax +49 40 8998-1905

massimo.altarelli@xfel.eu

Prof. Dr. Thomas Cowan  
Helmholtz-Zentrum Dresden-Rossendorf (HZDR)  
Institute of Radiation Physics  
Bautzner Landstrasse 400  
D-01314 Dresden

Hamburg, 14 July 2012

Dear Professor Cowan,

the Management Board and the scientific staff, the Scientific Advisory Committee (SAC) and the Council of the European XFEL evaluated the seven proposals for User Consortia received last March, taking into account the input provided by the European XFEL Management and scientists.

For your „Proposal for a X-FEL User Consortium for the HELMHOLTZ-BEAMLINe at the European XFEL”, the input from the European XFEL can be summarized as follows:

*"The Management Board strongly supports the proposal. The provision of the additional instrumentation as part of the HED instrument is world-unique in combining high-power laser and pulsed magnet facilities with an X-ray FEL. It will increase applications of this instrument in areas such as High Energy Density and High Field science, as well as Planetary and Materials science.*

*However:*

- Details of integrating the HGF equipment with the HED instrument are challenging and still require further clarification.*
- The proposal to replace the baseline TW laser system by the PW laser system of the HGF beamline needs to be discussed in more detail."*

Your proposal received the following comments of SAC:

*"SAC is concerned that potential problems may arise due to the present status of funding for the UCs. In particular, this uncertainty makes advanced planning difficult (additional space, equipment, and workforce requirements). SAC emphasizes that the basic mission of the facility (international character and science-based usage) and the baseline features should not be compromised by the integration of UC contributions." (general comment applying to all proposal)*

*"The scientific case of this proposal is strong. The UC contribution will significantly enhance the capability of the baseline instrument. Therefore, SAC endorses the proposal. SAC also notes that lasers producing femtosecond pulses at 100 TW are well established; however, moving to the PW range is not straightforward and may impact the long term stable operation of the beamline. Is the scientific case for going from 100 TW to the PW level worth the risk and extra costs connected to radiation safety issues? SAC alerts the management that there may be human resource problems (many laser programs all over the world)."*

*"SAC believes that the increase of the repetition rate at 100 J can be more important than going to the pulse-on-demand kJ regime. This should be addressed by the user community."*

The Council met on June 13-14, received the internal European XFEL and the SAC evaluations, and reached the following conclusions:

*"The Council*

- *agreed that all seven User Consortia proposals are scientifically interesting,*
- *authorized the Management Board to invite the User Consortia to refine and tune the science case and the technical realization, as well as to assess the availability of the necessary resources and the financial and organizational feasibility of the proposed contributions*
- *authorized the Management Board to integrate the laser tunnel in the experiment hall by 2013, which is necessary for the proposed HGF-beamline in order to avoid major cost-intensive construction work later, under the condition that the corresponding funds (approximately 200 000 € ) are provided by the Consortium proponents."*

I would first of all like to congratulate you and your collaborators for this very positive evaluation.

Taking into account the above recommendations and conclusions, the Management Board decided to extend to you a request to provide, before 30 September 2012, an implementation plan of your proposal, detailing:

- a. The latest updates on the financial resources (available and applied for) for the implementation of your proposal. Please note that European XFEL cannot agree to the proposal to use the foreseen funds for the TW laser system, to be built at the HED instrument, for intermediate funding of HGF-Beamline components. It is the intention by European XFEL to make the HED instrument fully operational and

serving for user operation as early as possible in 2016. As also requested by SAC, the implementation of the HGF-Beamline proposal should not compromise the availability of a HED laser system (details to be determined) for the early operation phase of the HED instrument.

b. A time plan for the implementation, loaded with organizational, financial and human resources necessary for the implementation. Please note that the European XFEL will have to provide:

- Entire coordination of integration of the high energy and high power laser systems and of the pulsed magnet setup into the HED instrument.
- Design of modifications required to the HED instrument. In particular, to include the optical laser beam transports, the large experiments vacuum chamber, the pulsed magnetic field apparatus, and the assessment, design and implementation of an increased radiation protection shielding.
- Construction of the HED hutch with increased shielding performance and an increased technical infrastructure around HED, both of which cannot easily be factorized.
- Provision of means to synchronize the optical lasers.

and that all corresponding costs should be added to the financial envelope of the User Consortium.

c. All additional technical detail, with respect to the proposal submitted in March, that is available on the proposed infrastructure and equipment.

I am aware of the burden that these requests represent, but I hope you understand that these are necessary steps towards a rapid transition to the implementation phase of your proposals.

Sincerely,



Massimo Altarelli