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# Sixth International Vacuum Electronics Conference IVEC 2005

20-22 April 2005

Huis ter Duin, Noordwijk,The, Netherlands

*European Space Agency*
*Agence spatiale europeenne*

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# IVEC 2005

## "Sixth International Vacuum Electronics Conference IVEC 2005"



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**Session 1.2: Magnetrons, Crossed-Filed Devices and Electronics**



**Session 1.3: Modelling 1**

**Session 4.3: Technology**

## The European X-Ray Free Electron Laser XFEL

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The X-ray Free Electron Laser XFEL is a 4th generation synchrotron radiation facility based on the SASE FEL concept and a linear accelerator based on the superconducting TESLA technology.

The 3.3km partially underground facility will be located at the DESY laboratory, Hamburg (Germany). It will provide an X-Ray source with unprecedented properties in terms of peak brilliance, average brilliance, coherence, pulse duration and time structure. The peak brilliance of the European XFEL Facility will supersede any other conventional X-Ray light source by at least 10 orders of magnitude This source will allow the exploitation of X-Ray photons with wavelengths resonant with interatomic distances and with pulse durations comparable to times of inner-atomic motion and bonding electron motion. It will be uniquely matched to investigations of the structure and dynamics of matter at its most fundamental level.
The science case of the XFEL and the present status of the technical layout of the Linear Accelerator, the SASE Undulator and Photon Beam lines and the experiment stations will be presented.