Contribution ID: **451** Type: **Keynote - Plenary (only invited!)**

European XFEL –a new facility for fundamental science

Wednesday, 19 September 2018 09:00 (45 minutes)

European XFEL is the most recent large scale research infra structure in Europe. The facility was taken into user operation in September last year and more than 500 users have already participated in week long experiments. The facility is a hard X-ray free electron laser and provides a very powerful X-ray beam for research. The facility serves the European user community by providing the possibility for performing new classes of experiments to investigate the structure and dynamics of matter on the atomic length and time scales.

The facility encompasses a 3.5 km long tunnel from DESY in Hamburg/Bahrenfeld to Schenefeld in Schleswig-Holstein where the experimental hall is placed. The tunnel encloses a 2 km long superconducting accelerator operated by DESY and undulator radiation sources that produces an extremely powerful and ultra-short X-ray beam. The beam is guided through the 900 m long photon transport system into the experimental hall. The first two experimental stations have been performing experiments succesfully for about one year. In total six instrumental stations will be operating in 2019. In the talk the basic principles of the European X-FEL will be discussed and results of some of the first experiments will be shown.

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Session Classification: Plenary talk

Track Classification: Keynote/ Plenary/ Public lecture