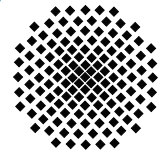


# Stuttgarter Physikalisches Kolloquium

Max-Planck-Institut für Intelligente Systeme  
Max-Planck-Institut für Festkörperforschung  
Fachbereich Physik, Universität Stuttgart

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Dienstag, 24. Juni 2014

17.15 Uhr

Hörsaal 2 D5

Stuttgarter Max-Planck-Institute, Heisenbergstraße 1, 70569 Stuttgart-Büsnau

Gastgeber: Prof. Gisela Schütz, Max-Planck-Institut für Intelligente Systeme, Telefon: 0711 - 689-1950

## MAX IV: Higher brightness, better science

**Christoph Quitmann**

MAX IV Laboratory, Lund University, Lund, Sweden

### Abstract

For more than 100 years X-ray sources have allowed us to make the invisible visible. Over the past decades synchrotrons have tremendously gained in performance and have broadened the community of X-ray users across all of natural science.

The MAX IV facility under construction in Lund, Sweden will be the brightest X-ray source when coming online in the summer of 2016. It uses an integrated optimization approach to deliver maximum brightness at reasonable cost. This required overcoming several engineering challenges, producing technology, which is now available to others. With the first suit of 13 funded beamlines MAX IV will offer unique opportunities for condensed matter research using a broad spectrum from ca. 5eV - 35 keV for imaging and spectroscopy. A linac based beamline will also provide access to ultra-fast phenomena ( $\approx 100$ fs).

Ecological sustainability has been a criterion for the facility design from the beginning. Both accelerator and building are optimized for minimum consumption of resources (land, electricity, construction material, water) and maximum recycling. For example the new MAX IV (3GeV, 528m circumference) ring consumes only half the energy of the existing MAX II (1.5 GeV, 96m) ring, despite being 5 times larger.

I will present the concept of the MAX IV project, it's status and future opportunities for intelligent systems research.