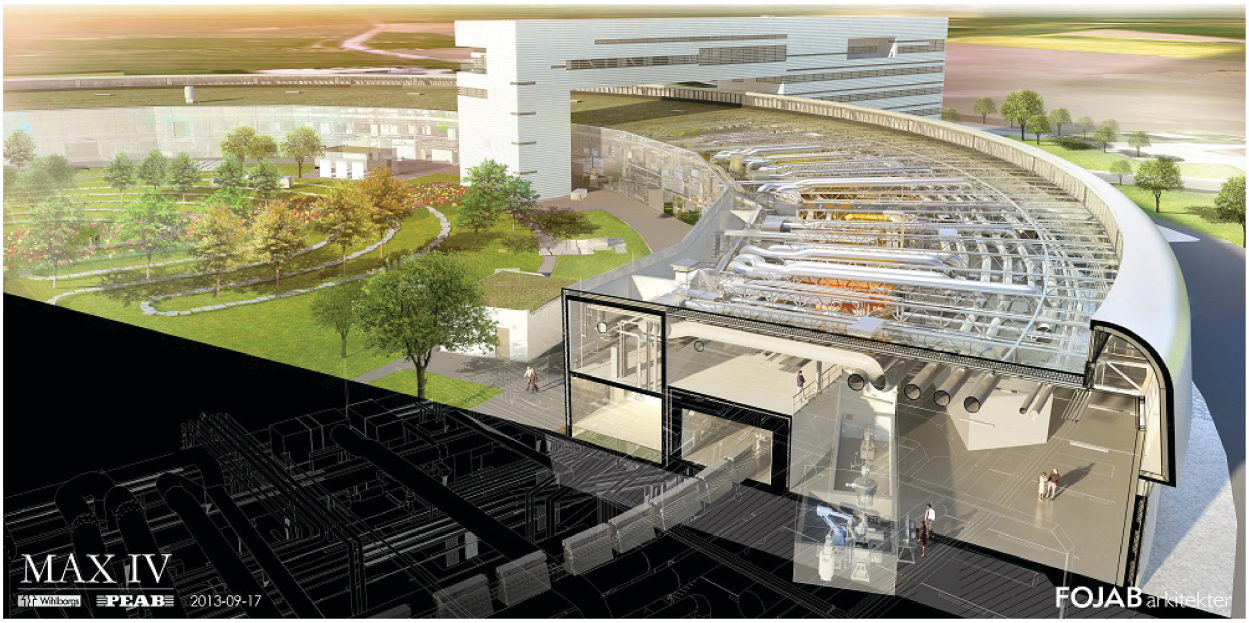
Christoph Quitmann

Argonne NATIONAL LABORATORY

MAX IV –
Pushing the Limits at a Light Source

The talk will present the concept, plans, and status of the MAX IV light sources presently under construction in Lund, Sweden. We are presently building two storage rings (1.5 and 3 GeV), which will deliver light of extreme brightness over a large range of photon energies (5 eV – ca. 30 keV). The accelerators use the new multi-bend achromat (MBA) concept to reach record emmittances (0.3 nmrad for a 3-GeV ring and 6 nmrad for 1.5-GeV ring). This is achieved by combining magnet functionality, shrinking the pole separation, and by a vacuum system relying entirely on NEG pumping. The facility provides space for ca. 25 ID-based beamlines. One of them will be located at the end of the linac, utilizing incoherent radiation with ca. 100-fs pulse length. The same linac is used to inject into both storage rings and can later be expanded to an FEL. At present, 13 beamlines are under construction. They are built in close collaboration and with partial funding from the Swedish universities and international partners. Throughout the design process it has been a goal to deliver the best possible science at an affordable cost and in a sustainable way. Solutions to achieve this, as well as problems arising will be discussed.



Christoph Quitmann received his Ph.D. in physics in 1993 at RWTH-Aachen/Germany, on the topic of high-temperature superconductors, during which time he was as a Fulbright Fellow at the University of Florida, Gainesville. From 1993-1995 he was a Postdoc at the Synchrotron Radiation Center, University of Wisconsin. From 1996 to 1998 he was a staff scientist at the University of Dortmund DELTA synchrotron, and from 1998 to 2012 he was at the Swiss Light Source at the Paul Scherrer Institut, Switzerland, where he rose to the position of Physical Science Director. Since 2012, he is the Director of the MAX IV Laboratory, Lund, Sweden, operating the MAX I-III storage rings, as well as building the new MAX IV project. MAX IV is a forerunner in accelerator technology pushing the concept of diffraction limited storage rings being picked up by laboratories around the world.

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Bldg. 402 | APS Auditorium
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APS Colloquium