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Inprentus Awarded Contract for over US$200,000 to Provide the European X-Ray Free-Electron Laser (EuXFEL) with High-efficiency Diffraction Gratings

Inprentus will supply research and development efforts, along with a series of samples, ultimately resulting in a final 530-millimeter long, ultra-low blaze angle diffraction grating to be installed in the SASE3 soft x-ray monochromator at the EuXFEL.

Champaign, Illinois, USA, January 30th, 2018: A contract has been awarded to Inprentus for the custom manufacture of a 530-mm long diffraction grating with variable line spacing and ultra-low blaze angles. First proposed in the literature in 2013, this challenging and first-of-a-kind diffraction grating will be part of the optical instrumentation on the SASE3 soft x-ray beamline at European X-Ray Free Electron Laser (EuXFEL) located in the German states of Hamburg and Schleswig-Holstein.

The SASE3 soft x-ray beamline has energies that will span from 0.25 to 3 keV, delivering photon pulses to the SQS (Small Quantum Systems) and SCS (Spectroscopy & Coherent Scattering) end-stations at the EuXFEL. The SQS end-station allows scientists to investigate samples from the atomic scale to the size of large biomolecules, using time-resolved techniques. The SCS end-station allows scientists to investigate the electronic structure of various materials and offers XRD, FFT, hRIXS, RIXS and PES. The Inprentus diffraction grating will be installed in the SASE3 monochromator, over 100 meters upstream of the end-stations, where it will enhance the spectral coherence of the beam, leading to improved data quality at both SASE3 end-stations.

"Working with the EuXFEL on this large ultra-high precision diffraction grating is the type of breakthrough project that supports the vision of the company," said Ron van Os, CEO of Inprentus. "Inprentus exists to provide a next level of high precision optics to the world's x-ray light sources as they expand their number of beamlines, upgrade instruments, and build the next generation of synchrotrons and free electron lasers."

Inprentus Inc.

Inprentus designs, manufactures and sells x-ray and EUV diffraction gratings for synchrotron and free electron laser facilities. Inprentus' gratings are used for a variety of scientific and commercial applications by many Fortune 500 companies, academic institutions and government laboratories around the world. The company was founded in 2012 to commercialize an innovative, nano-scale scribing technology. This technology is a general purpose approach to high-precision patterning of surfaces, and is particularly suited to x-ray and EUV diffractive optics in which features must be shaped with 0.1 degree angular precision and positioned with nanometer precision over distances of tens of centimeters.

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