

Chez Pierre

Presents ...
Monday, October 3, 2022
12:00 pm
Duboc Room - 4-331



Chez Pierre Seminar

Yasin Ekinici, Paul Scherrer Institute

“Advancing the lithography for more Moore and more than Moore”.

The tremendous shrinkage of semiconductor devices in the last five decades, as predicted by Moore’s law, has changed our daily lives. This progress was possible through advancements in photolithography and optical metrology. Extreme ultraviolet (EUV) lithography at 13.5 nm wavelength is the manufacturing method for high-volume semiconductor manufacturing at 7 nm technology node and below. To enable future progress, many challenges lie ahead. In my talk, as the tongue-twisting title suggests, I will discuss the challenges of nanolithography with specific examples. Moreover, it is evident that the progress of classical computing will come to an end, and therefore, we need a paradigm change. Fortunately, quantum computing is emerging as a technology that will ensure progress in computing beyond Moore’s law. I will talk about the challenges of quantum computing and present our ongoing work to address these. More specifically, I will talk about TaS₂ devices which can be a solution to low-power cryogenic memory.

Bio:

Yasin Ekinici is the head of the Laboratory for X-ray Nanoscience and Technologies at Paul Scherrer Institute. He obtained his Ph.D. in Max-Planck Institute for Dynamics and Self-Organization, Göttingen, Germany, in 2003. In 2004, he joined Paul Scherrer Institute as a postdoctoral researcher. Between 2006 and 2012, he worked as a postdoctoral researcher and subsequently as a senior scientist and lecturer in the Department of Materials at ETH Zürich. Since 2009, he is a senior scientist at PSI, as group leader of the Advanced Lithography and Metrology group, head of the Laboratory for Micro and Nanotechnology (2018-2022) and the head of the recently established Lab for X-ray Nanoscience and Technologies which hosts 6 research groups, 3 synchrotron beamlines and one X-ray FEL beamline.

He worked on various topics of nanoscience and technology, including atom optics, surface science, EUV lithography, resist materials, coherent scattering, lensless imaging, plasmonics, metamaterials, semiconductor nanostructures, biosensors and nanofluidics. He is author/co-author of more than 230 papers and 8 patent applications. He received Young investigator of the year award of Swiss Society for Optics and Microscopy in 2009. He is a fellow of SPIE.