Evening Sessions PIER Graduate Week

Uwe Bergmann: Seeing the Invisible – The Science and Application of X-rays
Monday, 6 October 2014, 18-20:00h , CFEL, SR I-III

Dr Uwe Bergmann is a Senior Staff Scientist at SLAC and the Director (interim) of the Linac Coherent Light Source, the world's first X-ray free electron laser. His research activities have focused on the development and application of novel x-ray spectroscopic techniques. His scientific interests include studies of the structure of water and aqueous solution, active centers in metalloproteins in particular the photosynthetic splitting of water, hydrocarbons and fossil fuels and imaging of ancient documents and fossils. Bergmann received his Diplom in Physics at Universität Hamburg and holds a PhD in Physics from Stony Brook University in New York. He has done his graduate research at the National Synchrotron Light Source and has worked at the European Synchrotron Radiation Facility, the Lawrence Berkeley National Laboratory, the Stanford Synchrotron Radiation Lightsource, and now the Linac Coherent Light Source. His CV can be found on his home page at www.slac.stanford.edu/~bergmann.

ABSTRACT

Since the discovery of X-rays by Wilhelm Conrad Roentgen in 1895, this mysterious form of light has revolutionized many fields of science and research. Most people are familiar with the penetrating power of X-rays that allow us to see the inside of our bodies, but other properties of X-rays might be even more fascinating. For example, X-rays can bring to light the structure and chemistry of molecules with atomic precision, far beyond the best microscopes. X-rays can also identify and image individual chemical elements, a phenomenon recently used to bring to light import documents in art and archaeology. Over the past 40 years powerful X-ray sources based on large accelerators, such as the synchrotron facilities HASYLAB and PETRA III at DESY or the Stanford Synchrotron Radiation Lightsource (SSRL) at SLAC, have dramatically advanced the field of X-ray science. Very recently the new X-ray laser at SLAC, the Linac Coherent Light Source (LCLS), has enhanced the brightness of X-rays sources by another staggering ten billion times. We will discuss these amazing machines, and some of the most exciting examples of recent X-ray research.

Bernd Irmer: Highest precision for the chip industry: Earning money with nanotechnology
Wednesday, 8 October 2014, 18-20:00h, CFEL, SR I-III

Dr Bernd Irmer is currently CEO of nanotools GmbH, which designs and manufactures nanotechnology solutions such as nano-field emitters and nano-metrology tools mainly for semiconductor industry. For instance, no iPhone can be made today without the usage of nanotools. Under his leadership (since 2004), the company made the transformation from a scientific driven university spin-off to a professional, fast growing, highly profitable entity, serving now 7 out of the top 10 semiconductor manufacturers worldwide. Until 2004 he worked as a Management Consultant and engagement leader at McKinsey &Co. Since joining McKinsey in October 1999, he had worked with client service teams in a broad range of engagements in various subindustries such as IT services, telecommunications, internet service provider, electric power, metals & mining. His engagements included among others:

- Sales and marketing strategy in telecommunication and IT service industry
- Developing new concept for internet service provider to to join in banking and security business
- Growth and innovation management at high-tech startups
- Turnaround program in electric power industry after market liberalisation
- Developing new purchasing and supply strategy for mining company to drastically reduce purchasing cost
- Developing innovative concept for public sector client to significantly increase market share in his target group

He is also active as member of the executive board of “startsocial e.V.”, one of the leading initiatives in Germany to support innovative and new voluntary projects – now running in its 8th year and supporting several hundred of projects.

Dr Irmer holds a PhD in Physics from Ludwig-Maximilians-Universität, Munich, and a MSc in Physics from Victoria University, Manchester/UK. His fields of research included Nanolithography, low dimensional electron systems and superconductivity. He was born May 8th, 1969 in Fürth/Germany.