



Contribution ID: 427

Type: **Talk**

The Variable Pulse Length Storage Ring BESSY-VSR

Wednesday, 19 September 2018 11:15 (15 minutes)

In the coming years BESSY II is undergoing its up-grade to BESSY-VSR, a novel approach to create in the Storage Ring long and short photon pulses simultaneously for all beam lines through a pair of superconducting bunch compression cavities. Pulse-picking schemes will allow each individual user to freely switch between high average flux for X-ray spectroscopy, microscopy and scattering and picosecond pulses up to 500 MHz repetition rate for dynamic studies. Thus BESSY-VSR preserves the present average brilliance of BESSY II and adds the new capability of user accessible picosecond pulses at high repetition rate. For the scientific challenges of quantum materials for energy, future information technologies and basic energy science BESSY-VSR is the multi-user Synchrotron Radiation facility that allows with the flexible switching between high repetition rate for picosecond dynamics and high average brightness to move classical 3rd generation Synchrotron Radiation science from the observation of static properties and their quantum mechanical description towards the function and the control of materials properties, technologically relevant switching processes and chemical dynamics and kinetics on the picosecond time scale. BESSY-VSR creates for the highly productive Synchrotron Radiation community a uniquely attractive multi user storage ring adding the soft X-ray picosecond dynamics up to MHz repetition rate at preserved average brilliance. In particular investigations on reversible dynamics and switching in molecular systems and materials are accessible in a non-destructive way. The investigations with X-rays from BESSY-VSR are highly complementary and compatible to dynamic studies conducted by users with optical lasers at their home universities and laboratories. BESSY-VSR represents also a missing link between the extreme average brilliance of ultimate storage rings and Free Electron Lasers.

Primary authors: FÖHLISCH, Prof. Dr. Alexander (HZB/U Potsdam); ON BEHALFT OF THE BESSY VSR PROJECT

Presenters: FÖHLISCH, Prof. Dr. Alexander (HZB/U Potsdam); ON BEHALFT OF THE BESSY VSR PROJECT

Session Classification: Micro symposium 6

Track Classification: MS6 Next generation large scale facilities