

## **Speed Poster: BEAM DYNAMICS OF LOW CHARGE ELECTRON BUNCHES FOR SINGLE SPIKE RADIATION AT FLASH**

*Wednesday 15 July 2015 15:49 (3 minutes)*

This poster discusses the generation of single spike SASE pulses at soft x-ray wavelength at the free-electron laser FLASH by using electron bunches of a few femtosecond duration. In order to achieve these extremely short bunch lengths, a low bunch charge of about 20pC is required. An injector laser with an adjustable pulse duration within the range of 1.7ps to 4ps FWHM and bunch charges up to 200pC is used for this special operation mode. Beam dynamic studies have been performed to optimize the injection and compression of low-charge electron bunches by controlling the effect of coherent synchrotron radiation and space-charge induced bunch lengthening and emittance growth. Optimization includes the pulse parameters of the injector laser.

**Primary authors:** Dr STEFFEN, Bernd (DESY); Dr ROENSCH-SCHULENBURG, Juliane (DESY)

**Presenter:** Dr STEFFEN, Bernd (DESY)

**Session Classification:** Session 2 | Beam Dynamics & Photon Sources

**Track Classification:** Session 2 | Beam Dynamics & Photon Sources