

Characterization and optimization of femtosecond electron bunches in a novel pin-cathode RF Gun

A femtosecond time resolved electron diffraction setup is being commissioned at FS-CFEL-2. Based on a novel compact pin cathode RF gun, 150 keV electron bunches with a bunch charge of 100 fC with self-compressing sub- 100 fs pulse duration are achievable. Optimization of UV trigger pulse parameters are required to obtain the best possible bunch parameters on target. This project entails exploring parameter space of electron bunch generation parameters to obtain the highest brightness output, which is essential to eventual structural dynamics investigations. Experimental work and simulations will be part of the project.

Group

FS-CFEL-UFOX

Project Category

A4. Development of experimental techniques

Special Qualifications

Primary author: KASSIER, Guenther (FS-CFEL-2 (Ultrafast X-rays Group))