



Contribution ID: 42

Type: **not specified**

# Status of the CYBORG beamline at UCLA: First Room Temperature Photoelectrons, soon available at 80 K!

The intrinsic emittance obtained from radio-frequency (RF) photoinjectors is notably reduced by increasing the launch field at the cathode. Moreover, cryogenic RF guns offer the possibility of producing stronger fields, due to the higher bulk conductivity and lower breakdown rate, while reducing the mean transverse energy (MTE) of near-threshold photo electrons. Such devices thus constitute an ideal tool for driving low emittance electron applications like ultra fast electron diffraction (UED) and free electron lasers (FELs). The CYBORG beamline at UCLA is a stepping stone facility meant to investigate the production of very low MTE photoelectrons in cryogenic RF guns. Here we report on the status of the beamline operation. In particular, we recently produced the first photoelectrons from the C-band RF gun at room temperature and are currently working on the diagnostics that will allow a thorough characterization of such beams. We also discuss some of the technical challenges that we encountered in the process and the ones that we are still addressing.

**Primary author:** BOSCO, Fabio

**Co-authors:** SMITH, April (University of California, Los Angeles); FUKASAWA, Atsushi (UCLA); PENNINGTON, Chad; LAWLER, Gerard (UCLA); ROSENZWEIG, James (UCLA); JIMENEZ-ZEPEDA, Jesus (UCLA); MUSUMECI, Pietro; SAKAI, Yusuke (University of California Los Angeles)

**Presenter:** BOSCO, Fabio