

## The Beams and Applications Seminar Series

# A CW Normal-Conductive RF Gun For Free Electron Laser and Energy Recovery Linac Applications

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**Bldg. 401, Rm. B4100**

**Tuesday, June 17, 1:30 pm**

**(please note special day and room)**

**Host: Kwang-Je Kim, ASD**

Currently proposed energy recovery linac and high average power free electron laser projects require electron beam sources that can generate up to  $\sim 1$  nC bunch charges with less than 1 mm mrad normalized emittance at high repetition rates (greater than  $\sim 1$  MHz). Proposed sources are based around either high voltage DC or superconductive microwave RF guns, each with its particular set of technological limits and system complications. At the Lawrence Berkeley National Laboratory, we are proposing a scheme for a gun fully based on mature RF and mechanical technology that greatly diminishes many of such complications. The gun will operate in the VHF frequency range in CW regime and could represent an appealing alternative to DC and superconducting electron guns when high repetition rates are required. The concepts for such a source as well as the status of the RF and mechanical design are described. Simulations that demonstrate the beam quality preservation and transport capability of an injector scheme based on such a gun are also briefly presented.

### **For more information visit**

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