

Mentor: Ivan Bazarov

Title: In situ modeling of ERL injector

Description: The Laboratory is building a very high brightness electron injector as a critical component of a future Energy Recovery Linac (ERL). Operation of the injector will be done with the help of fully computerized Experimental Physics and Industrial Control System (EPICS). It is highly desirable to carry out 'live' modeling of the injector performance using actual set values available from the control system. The results of these simulations will be compared with measurements of the actual beam properties allowing 'debugging' of the accelerator and optimizing its performance. The project will involve developing an interface between the codes that simulate beam properties and the control system of ERL injector. Prerequisites include familiarity with *nix OS, C/C++, and a GUI capable script, e.g. Tcl/Tk.