The Beams and Applications Seminar Series

Accelerator Physics and Applications of Energy Recovering Linacs

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Bldg. 401, Room B2100

Friday, April 11, 1:30 PM

Host: Katherine Harkay

Energy Recovering Linacs (ERLs) are potentially powerful types of recirculating linear accelerators in that they deliver beams of linac quality (short pulses and emittance and energy spread determined by the source) with efficiency approaching that of storage rings. As a result, in addition to the two existing ERLs being used as FEL drivers, the Jefferson Lab (JLab) IRFEL and the JAERI FEL, ERLs are being contemplated for a variety of other applications. These applications include the generation of X-ray radiation, high energy electron cooling, and linac-ring colliders for nuclear and particle physics. The required beam current for these applications is of order 100 mA, a factor of 20 higher than presently demonstrated at the JLab IRFEL. The energy of these applications spans the range from the currently achieved 50 MeV to 5 GeV. This talk reviews the existing and planned energy recovering linac projects and their accelerator physics and technology issues. Experimental data obtained at the JLab IRFEL energy recovering linac and recent experimental results from CEBAF-ER, a high-energy demonstration of energy recovery at CEBAF, are presented and used to evaluate the limitations and ultimate performance of ERLs.

For more information visit

http://www.aps.anl.gov/asd/physics/seminar.html

Visitors from off-site please contact John Power (jp@anl.gov, 630-252-3191) to arrange for a gate pass.

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