

AFRD SPECIAL SEMINAR

"An Integrated Photoelectron Linac for Compton X-Ray Generation"

Dr. David Yu
DULY Research Inc.

Thursday September 6th, 2001, 10:00AM
Building 71, Albert Ghiorso Conference Room

Abstract:

A compact photoinjector in which the photocathode is integrated into a multicell linac can produce an electron beam with high brightness in a small footprint. It is an ideal electron injector for a table top, Compton backscattered x-ray source. DULY Research Inc. has designed and fabricated a 20-MeV integrated photoelectron linac using a novel Plane Wave Transformer (PWT) design. The design parameters for an S-band PWT photoinjector will be reviewed.

A DULY high brightness electron injector has been installed at the UCLA Pegasus Laboratory. A normalized emittance of 1 mm-mrad is achievable with a charge of 1-nC per bunch. Dr. Yu will also discuss modification needed to operate an integrated photoinjector in a multibunch acceleration mode to increase the electron yield, as well as for flat beam generation. Synchronous collisions between an electron beam with an ultrashort pulse, T3 laser can provide high yield, ultrafast x-ray pulses comparable to larger and more expensive synchrotron radiation sources.

Biography:

Dr. Yu is the President and CEO of DULY Research Inc., a small high tech R&D company specializing in accelerator R&D. DULY has been a winner of multiple Phase II SBIR projects from the DOE and NSF, including the development of PWT photoinjectors.

Questions regarding this seminar speaker may be directed to Kem Robinson [KERobinson@lbl.gov]
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