

# **LASER-COMPTON SCATTERING (LCS) AS A POTENTIAL ELECTRON BEAM MONITOR**

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LCS experiments were carried out at the Idaho Accelerator Center (IAC); sharp monochromatic x-ray lines were observed. These are produced using the so-called inverse Compton effect, whereby visible laser photons are collided with a relativistic electron beam. The back-scattered photons are then kinematically boosted to keV x-ray energies. We have first demonstrated these beams using a 20 MeV electron beam collided with a 100 MW, 10 ns Nd:YAG laser. We observed narrow LCS x-ray spectral peaks resulting from the interaction of the electron beam with the two Nd:YAG laser photon lines of 1064 and 532 nm. The LCS x-ray energy lines and energy deviations were measured as a function of the electron beam energy and energy-spread respectively. The results showed good agreement with the predicted values. LCS could provide an excellent probe of electron beam energy and energy spread. Angular distribution measurements will also be presented.

Acknowledgements: This research was supported by the U.S. Department of Energy under contract number DE-FG02-00ER45848 and by the Idaho National Engineering and Environmental Laboratory under contract number 00000069/TO3.