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Abstract for an Invited Paper for the DNP10 Meeting of the American Physical Society

Charged Particle Radiography-a new way to look inside of things CHRISTOPHER MORRIS, Los Alamos National Laboratory

A new technique (pRad) has been developed at LANL, which uses high energy protons for flash radiography. PRad allows much more detailed information to be obtained from dynamic experiments than was ever available in the past. Since the first demonstration of the focusing of protons for radiography in 1995, huge progress has been made in developing techniques for dynamic imaging that have made proton radiography an important contributor to the study weapons physics. Approximately 40 small scale dynamic experiments are preformed per year using the line C facility at LANSCE. Movies of up to 32 frames can be made of explosively driven experiments, allowing new phenomena to be observed and quantified. New capabilities are being added to the facility continuously. Spin offs from pRad include muon tomography and proton tomography. These techniques will be described and results from recent experiments will be presented.