

LA-UR- 09-06224

Approved for public release;  
distribution is unlimited.

Title:	Proton Radiography at Los Alamos: Looking inside Explosions
Author(s):	Alexander Saunders
Intended for:	Colloquium at North Carolina State University



Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by the Los Alamos National Security, LLC for the National Nuclear Security Administration of the U.S. Department of Energy under contract DE-AC52-06NA25396. By acceptance of this article, the publisher recognizes that the U.S. Government retains a nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or to allow others to do so, for U.S. Government purposes. Los Alamos National Laboratory requests that the publisher identify this article as work performed under the auspices of the U.S. Department of Energy. Los Alamos National Laboratory strongly supports academic freedom and a researcher's right to publish; as an institution, however, the Laboratory does not endorse the viewpoint of a publication or guarantee its technical correctness.

Proton Radiography at Los Alamos: Looking Inside Explosions  
Alexander Saunders

Proton Radiography (PRAD) is a diagnostic tool that uses high energy proton beams to generate sequences of flash radiographs of fast moving objects. It has been used at Los Alamos National Lab to study such phenomena as detonation of high explosives and explosively-driven metal deformation, failure, and equation of state. PRAD is the only technique that can generate tens of frames of flash radiography data on time scales ranging from nanoseconds to hours. PRAD principles and techniques will be described, and examples of results from PRAD experiments will be presented.