

**Abstract Submitted for the Forty-Ninth Annual Meeting
Division of Plasma Physics
November 12–16, 2007, Orlando, Florida**

Category Number and Subject: 10.0.0 Undergraduate Students

Theory Experiment

Soft X-ray Tomography at DIII-D,* H. Rinderknecht, *Princeton U.*; R.K. Fisher, *General Atomics*; E.M. Hollmann, *UCSD*; M.J. Lanctot, *Columbia U.*; F. Volpe, *ORAU* – Two new 32 channel SXR pinhole cameras have been recently installed in the DIII-D tokamak. They are sensitive to photons in the 2-20 keV range, but an interchangeable set of diamond filters with five settings allows selection of the range of energies of interest. New tomographic inverters were developed and validated against analytic models and magnetically reconstructed EFIT equilibria. Tomographic inversion techniques suitable for use with the new diagnostic geometry and preliminary inversions of new SXR data will be presented, along with re-analysis of earlier measurements of disruption-generated fast electrons and equilibria. Thanks to a temporal resolution of a few microseconds, progress has also been made in the tomographic reconstruction of rapidly moving, relatively weak emitters such as rotating islands.

*Supported by the US DOE under a National Undergraduate Fusion Fellowship Program, DE-FC02-04ER54698, DE-FG02-04ER54758, and DE-FG02-89ER53297.