

Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Quantitative extraction of spectral line intensities and widths from spectra recorded with gated MCP detectors¹ GREG DUNHAM, Ktech corp., JAMES BAILEY, GREG ROCHAU, PATRICK LAKE, Sandia National Labs, LINDA NIELSEN-WEBER, Ktech corp. — Plasma spectroscopy requires determination of spectral line intensities and widths. At Sandia's Z facility we use elliptical crystal spectrometers equipped with gated MCP detectors to record time and space resolved spectra. We collect a large volume of data typically consisting of 5-6 snapshots in time, and 5-10 spectral lines with 30 spatial elements per frame, totaling to more than 900 measurements per experiment. The sheer volume of data requires efficiency in processing. Each line is approximated by a line profile in a line fitting routine, taking into account the photo-electron statistics to determine the uncertainties. Analysis of the MCP photo-electron statistical distribution will be discussed. Effects of the assumptions made in the line fitting routine will be addressed.

¹Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy under contract DE-AC04-94AL85000.

Greg Dunham
Ktech corp.

Date submitted: 21 Jul 2006

Electronic form version 1.4