Abstract Submitted
for the DAMOP06 Meeting of
The American Physical Society

**Novel Method for Laser Beam Profile Determination** GIORGI VESHAPIDZE, MARC TRACHY, MUDESSAR SHAH, BRETT DEPAOLA, J. R. Macdonald Laboratory, Dept. of Physics, Kansas State University, Manhattan, KS 66506 — A novel method for laser beam size determination has been developed, which greatly increases the accuracy of beam size estimation. The conventional technique of driving a knife-edge across the beam was used, but instead of differentiating and fitting the result with a Gaussian function, the raw data were fit to an analytical approximation to the complementary error function. The advantage of this technique over the conventional one is that differentiation, and the resulting scatter in the data, is not required. The results from the improved method are within the fitting uncertainty of the results obtained with the conventional method. However, the fitting error is substantially reduced.

Giorgi Veshapidze
J. R. Macdonald Laboratory, Dept. of Physics
Kansas State University, Manhattan, KS 66506

Date submitted: 01 Feb 2006 Electronic form version 1.4