

Abstract Submitted  
for the MAR08 Meeting of  
The American Physical Society

**Two photon absorption in PTCDA films using the z-scan technique** A.M. AJWARD, V.R. GANGILENKA, Department of Physics, University of Cincinnati, Cincinnati, Ohio 45221, U.S.A., H. SCHMITZER, Department of Physics, Xavier University, Cincinnati, Ohio, 45207, U.S.A., H.P. WAGNER, Department of Physics, University of Cincinnati, Cincinnati, Ohio 45221, U.S.A. — The two-photon absorption coefficient of a polycrystalline PTCDA (perylene-3,4,9,10-tetracarboxylic-3,4,9,10-dianhydride) thin film was measured at 880 nm using the z-scan technique. The 2  $\mu\text{m}$  thick PTCDA film was grown by organic molecular beam deposition (OMBD) on Pyrex. For the z-scan measurements  $\sim 1$  ps pulses were focused onto the thin film using a microscope objective lens (100x) of numerical aperture 0.55 and a beam waist of 1  $\mu\text{m}$ . The films have been moved by a translation stage with a travel range of 100  $\mu\text{m}$  and with a step size of 0.5  $\mu\text{m}$ . The two-photon absorption coefficient of PTCDA obtained from a fit with open aperture measurements at different intensities results to  $\sim 100$  cm  $\text{GW}^{-1}$ . The z-scan measurements demonstrate that crystalline PTCDA films possess strong nonlinear optical properties that might be utilized for optical applications.

V. R. Gangilenka  
Department of Physics, University of Cincinnati, OH, 45221, U.S.A.

Date submitted: 29 Nov 2007

Electronic form version 1.4