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**Anisotropic Refractive Index Dispersion in Polycrystalline PTCDA Waveguides** MILHAN AJWARD, XIAOSHENG WANG, VENKAT GANGILENKA, JOHN MARKUS, HANS PETER WAGNER, Department of Physics, University of Cincinnati, Cincinnati, Ohio 45221, HEIDRUN SCHMITZER, Department of Physics, Xavier University, Cincinnati, Ohio 45207 — The dispersion of the inplane and normal refractive index in 3,5,9,10-perylentetracarboxylic dianhydride (PTCDA) waveguides has been determined using the m-line technique. TE and TM mode coupling at excitation wavelengths ranging from 633 to 910 nm has been accomplished by a Rutile prism. The PTCDA waveguides, which were grown by organic molecular beam deposition on Pyrex substrate, reveal a strong optical anisotropy between the inplane and normal refractive index values showing e.g. a birefringence of  $\sim 0.8$  at a wavelength of 633 nm. Our measurements demonstrate the high optical quality of our PTCDA waveguides as well as their potential for polarization dependent all-optical applications. In particular, the high compressibility of PTCDA waveguides along the soft crystallographic  $a$ -direction bears potential for pressure sensitive applications.

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