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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 ~ 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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