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Stress-optic coefficient of potassium terbium fluoride. WILLIAM POSTON, SAID ELHAMRI, Department of Physics, University of Dayton, Dayton, Ohio, D. E. ZELMON, Materials and Manufacturing Directorate, Wright-Patterson AFB, OH — Potassium terbium fluoride (KTF) is a material proposed to act as an optical isolator. Optical isolators are employed in high power laser systems in which reflected beams must be prevented from coupling into the pump laser. The stress-optic coefficient relates mechanical stress to the birefringence it induces. At high power, strains in the lasing material change the refractive index of the lasing material, which can distort the output beam. The stress-optic coefficient is thus a crucial measurement for the design of laser cavities that employ optical isolators. The stress-optic coefficient for KTF was obtained by applying mechanical stress to a sample and measuring the output intensity of a laser shone through the sample. The change in intensity with applied pressure is a result of the change in refractive index of the sample, through the stress-optic effect. The stress-optic coefficient of KTF was determined and is reported.

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