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Shift of Optical Absorbance with Pressure in Star Polymers JOHN FERGUSON, AF Research Laboratory, Materials and Manufacturing Directorate, WPAFB, OH 45433, BARRY LONG¹, Physics Dept., Juniata College, Huntingdon, PA 16652 — The optical absorbance dependence on pressure is studied for star polymers dispersed (less than 1% wt./wt.) in either polymethylmethacrylate or polycarbonate. The star polymer is composed of a hyperbranched core and π -conjugated polymer arms. The optical absorbance red shifts with increasing pressure and is expected to be due to increase in the conjugation length. The sensitivity on pressure is greater with the star polymers than for a pure linear polymer of the conjugated arm. The proposed enhancement mechanism is a non-uniform distribution of strain in analogy with the impact toughening of a matrix material by multidimensional additives.

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