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**Ellipsometry as a Probe of Crystallisation Kinetics in Thin Diblock Copolymer Films** JESSICA L. CARVALHO, MICHAEL V. MASSA, KARI DALNOKI-VERESS, Physics and Astronomy, McMaster University — We present our recent results on the use of ellipsometry to probe the crystallisation kinetics of thin films of a diblock-copolymer. Ellipsometry uses the ellipticity induced upon reflection of light from a film covered substrate to allow calculation of the refractive index and thickness of the film. By studying the temperature dependence of these quantities one can measure phase transitions including the crystallisation kinetics. The samples used are thin films of a polybutadiene-b-poly(ethylene oxide) diblock. The PB-b-PEO diblock has block molecular weight of 26,000 and 6,800 respectively and micro phase-separates into PEO minority spheres in a PB matrix. The study presented is very similar to what is typically performed by DSC, except that the ellipsometer also provides the expansion and contraction of the film (i.e. expansion coefficients, contraction upon crystallisation). We will discuss the results which can be obtained with this approach.

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