

Abstract Submitted  
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**Phase behavior of the thermoresponsive polymer Poly(N-isopropyl acrylamide) at variable pressure** ALFONS SCHULTE, Department of Physics and College of Optics and Photonics, University of Central Florida, Orlando, FL 32817-2385, KORA-LEE CLAUDE, SIMON PINZEK, PETER MLLER-BUSCHBAUM, CHRISTINE PAPADAKIS, TU Mnchen, Physik-Department, LS Funktionelle Materialien, James-Franck-Str. 1, 85748 Garching — Stimuli-responsive such as Poly(N-isopropyl acrylamide) (PNIPAM) exhibit lower critical solution temperature (LCST) behaviour. At ambient pressure it is associated with the release of water and coil to globule transition of the polymer chains, leading to phase separation. Using turbidimetry we measure the P-T phase diagram over an extended range of pressure (0.1–400 MPa) and temperature (-10–40 °C). The phase boundary shows an elliptic profile, i.e. the cloud point temperature first increases and then decreases with pressure. This is reflected in the change in Gibbs free energy, isothermal compressibility, and isobaric heat capacity. The role of solvent-solvent interaction and addition of co-solvents is discussed.

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