

Abstract Submitted  
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**Dynamic Melting of Highly Compressed Nitrogen<sup>1</sup>** DANE TOMASINO, CHOONG-SHIK YOO, Department of Chemistry, Institute of Shock Physics, Washington State University, Pullman, Washington 99164 — Nitrogen exhibits a fascinating high-pressure polymorphism in solid along with the predicted transition to a conducting polymer in liquid. The solid-liquid phase boundary, however, is still the subject of debate – not well understood. This is, in part, due to a lacking of proper in-situ structural/chemical diagnostic technique capable of probing hot dense nitrogen phases at high pressures and temperatures. The challenge is mainly due to high mass and thermal diffusivity and chemical reactivity of hot dense fluids. To remedy this situation, we have applied the time-resolved Raman spectroscopy on laser-heated nitrogen in diamond anvil cells. In this experiment, the onset of melting was determined in-situ by probing the discontinuous spectral change in nitrogen vibrons during rapid isochoric heating, while the temperature was measured through time-resolved thermal spectro-radiometry.

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