

Abstract Submitted
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Elastic Moduli of Beta Plutonium YOKO SUZUKI, VICTOR R. FANELLI, ALBERT MIGLIORI, JONATHAN B. BETTS, JEREMY M. MITCHELL, MICHAEL RAMOS, FRANZ FREIBERT, CHARLES H. MIELKE, Los Alamos National Laboratory — The elastic moduli of pure polycrystalline beta Pu were measured using resonant ultrasound spectroscopy between 415 K (above the transition from the alpha phase) and 491 K (below the transition to the gamma phase). Results will be compared with the elastic moduli of the alpha and gamma phases, measured on the same specimen, as well as the Gallium-stabilized delta phase. The bulk modulus lies between those of the alpha and gamma phases as expected, but it has unusually small temperature dependence unlike that previously reported for the beta phase. The shear modulus is surprisingly nearly continuous between the beta and gamma phases. The Poisson's ratio shows typical metallic behavior. Overall, the elastic moduli we measured have higher values than any previous measurements, an indication of the higher quality of our sample.

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