



We Reveal Some of the Deep Mysteries of Plutonium Metal and the Fundamental Science That Connects Them

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Abstract:

The physical properties of plutonium metal and its gallium alloys are reviewed with an eye toward highlighting the outstanding and important fundamental science questions that remain today unanswered. Along the way, assumptions about plutonium that have been extent for decades but are unsupported by measurements are discussed, and research directions outlined. Some of these assumptions include issues with phase diagrams, what actually happens as Pu ages, and recent measurements that constrain theory.

Biography:

Albert Migliori received his B. S. in physics in 1968 from Carnegie Mellon University, his M. S. and Ph.D. in physics from the University of Illinois in 1970 and 1973. He is co-discoverer of acoustic heat engines, Chair of the Science Advisory Council for the National High Magnetic Field Laboratory (UF, FSU, LANL), director of the Seaborg Institute for Actinide Science and the Energy Security Council at Los Alamos National Laboratory, and is a leading expert in the use of resonant ultrasound spectroscopy as a solid-state physics tool for which he has won RD100 awards in 1991 and 1994, a Federal Laboratory Consortium Award for Excellence in Technology Transfer in 1993, and a Los Alamos National Laboratory Distinguished Performance Award in 1994. He is a fellow of the Los Alamos National Laboratory, the American Physical Society, and the American Association for the Advancement of Science, and the Acoustical Society of America. He is Chair, Physical Acoustics Technical Committee, Acoustical Society of America, and Chair, General Instrumentation and Measurement Topical Group, American Physical Society. He holds 25 patents, is the author of about 200 publications, six book chapters, and one book.