Glenn T. Seaborg Center Seminar

Research on 5*f* electron systems: Surprises at the end of the periodic table

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4:00 - 5:00 pm
Building 70A, Room 3377

Experiments on the transuranium elements are difficult, time consuming, require special facilities, and deal with material that is actually changing during the experiment. Despite this, new effects can be found in this little explored part of the periodic table that are relevant to some of the important questions in condensed-matter physics.

This talk will discuss the elements themselves and their properties, from the charge-density wave found in uranium to the collapsed phases of curium at 1 GPa. Many of these experiments require hard x-rays for investigating the crystal structures under pressure. For the heavier actinides Mott transitions take place from localized to itinerant behaviour in the 5*f* states. Finally, some remarks will be made about current research efforts on the 18 K superconductor $PuCoGa_5$, which is believed to provide the 'bridge' between non-conventional heavy-fermion (< 3 K) and high-T_c (> 50 K) superconductors.

** G. Lander was formerly Director of the ITU in Karlsruhe; he is now retired and lives in Grenoble, France, where he is involved in experiments at ILL and ESRF.*

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