

# Uranium Compounds: A Frontier for Condensed Matter Physics

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Condensed Matter Physics has two well-defined limits with which electronic states can be described: The localized (atomic) limit and the itinerant (band) limit. These two limits are paradigms used for the description of the electronic properties. Most materials are reasonably described by either one paradigm or the other. However, many uranium intermetallic compounds are considered anomalous since their properties do not fall into these two classes, they fall on the frontier between them. The electronic correlations result in extremely temperature dependent near Fermi-Energy properties, sometimes involving phase transitions. Angle Resolved Photoemission is an excellent technique for probing near Fermi-energy states. We shall survey the underlying theory behind the Fermi-surface properties of spin density wave, charge density wave and heavy fermion uranium compounds.