



Glenn T. Seaborg Center Seminar

What can dirt tell us about electronic behavior in actinide compounds?

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4:00 - 5:00 pm

Building 70A, Room 3377

Some of the most challenging problems in condensed matter and materials science are related to the behavior of the strongly correlated electrons in f-electron materials. Often, these strong correlations lead to unexpected, emergent phenomena at low temperature such as superconductivity. Nuclear Magnetic Resonance (NMR) has played a leading role in recent years in elucidating the nature of these novel broken symmetries and the role played by electron-electron correlations. By purposefully adding impurities and probing the response via NMR, we can shed new light on the correlations present. Three examples will be discussed:

- (1) the unconventional superconducting state of PuCoGa_5 ,
- (2) the hidden order phase of URu_2Si_2 and
- (3) antiferromagnetism in CeCoIn_5 . In each case, the response to "dirt" has revealed important information about the underlying ordered state.