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Epitaxial growth and *in situ* ARPES of ultrathin $YbAl_3$ thin films
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$YbAl_3$ is a well-known intermediate valence compound that shows emergence of Fermi liquid behavior below a coherence temperature of ˜34K – 40K. Transport, thermodynamic and photoemission measurements have established limitations of Single Impurity Anderson model in describing this material system, suggesting the importance of lattice effects. However, microscopic mechanisms underlying these properties are yet to be properly understood, one reason being that the direct experimental determination of its electronic band structure is still lacking. In this talk I will present our recent efforts in stabilizing thin films of $YbAl_3$ and *insitu* angle-resolved photoemission spectroscopy (ARPES) of these films. With the aid of an Al buffer layer crystalline, phase pure and fully oriented epitaxial thin films can be grown with sub-nm surface roughness. By using ARPES, we, for the first time have been able to map out its band structure and Fermi surface. Moreover, by growing ultra thin films we have been able to drive this material system towards its 2D limit. Evolution of its electronic structure with temperature and dimensionality will be discussed.

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