



Angle Resolved PhotoEmission Spectroscopy: From basics to an application on the electronic structure of V_2O_3

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Angle Resolved PhotoEmission Spectroscopy (ARPES) is a state-of-the-art experimental technique that gives direct view into the electronic structure of materials. It has been well established as one of the principal experimental tools to provide important insights in hot topics of condensed matter physics such as high-temperature superconductivity [1], graphene [2], topological insulators [3], etc. In this talk, I will start by reviewing the main principles of this experimental technique (working principle, research potential, technicalities). Subsequently, I will present our recent experimental results on V_2O_3 thin films, and I will argue that we have for the first time succeeded to measure the electronic structure changes of V_2O_3 across its metal-to-insulator transition (MIT). The MIT transition of V_2O_3 is considered an archetype of a Mott transition but the microscopic mechanism behind it remains controversial after 50 years of research [4, 5]. The clear spectroscopic fingerprints of our experiments provide key missing evidence [6].

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