

Cryogenic STM/AFM: From resolving the materials structure to tracing single electrons

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Surface Science is a research area focused on understanding the structure, electronic properties and chemical reactivity of surfaces and interfaces. Among the available experimental techniques, scanning probe methods traditionally hold a strong position due to its ability to routinely obtain atomic resolution. In the seminar I will introduce the basics of the technique and demonstrate its application on two research areas: First, analysis of new materials, specifically thin films of transition metal sulphides grown electrochemically. Second, I will discuss the option of detecting and manipulating single electrons trapped in the crystal lattice, so called polarons.