



*Im Rahmen des Physikkolloquiums spricht*

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über

**"Formation of Metal Clusters and Nanowires in Superfluid Helium Droplets and their Surface Deposition"**

**Abstract:**

Superfluid droplets of  $10^4$  to  $10^7$  helium atoms ( $\text{He}_N$ ) are doped with foreign atoms or molecules that move freely in or on the droplets and may form complexes in this cold environment [1].

In our labs, large Cu; Ag, Au, and Ni aggregates of different morphology are generated in helium droplets [e.g. 3] and their landing on a solid substrate was modelled in a molecular dynamics simulation [4]. Nanowires and core-shell clusters with one metal surrounding a core of different kind were observed, deposited on solid substrates [5, 6], and analyzed by high resolution electron microscopy and tomography [7]. As it turns out, the temperature of the substrate [6] and the doping rate [8] have an important influence on the final cluster or wire structure. Our systematic studies will help to provide recipes for the creation of tailored nanoparticles.

A brief survey will be given on other projects in my group addressing electron-nuclear coupling phenomena in molecules and semimetals.

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