



EINLADUNG

zum

VERA - SEMINAR

von

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**Nucleation – from Molecular Clusters
to Nanoparticles**

Formation of atmospheric aerosol particles and cloud droplets strongly depends on nucleation of nanoclusters. However, homogeneous as well as heterogeneous nucleation are still among the least understood phenomena in aerosol science.

New particle formation generally proceeds via critical molecular clusters. The heterogeneous nucleation theorem allows to determine critical cluster sizes directly from experimental observables. By heterogeneous nucleation experiments in an expansion chamber system we were bridging the range from molecular clusters to nanoparticles clearly observing a charge sign effect [1]. Recently we were able to activate single seed molecules well below the Kelvin prediction. This unexpected behaviour has been explained by quantitative determination of the molecular content of critical clusters [2]. Thus the particle size range for Condensation Particle Counters is now considerably extended down to about 1 nm. CPCs are key instruments for observation of cluster formation under near atmospheric conditions in ongoing model experiments at CERN [3].

[1] P.M. Winkler et al., Science 319, 1374-1377 (2008).

[2] P.M. Winkler et al., Phys. Rev. Lett., accepted for publication.

[3] J. Kirkby et al., Nature 476, 429-433 (2011).

Donnerstag, 15. März 2012, 16:30 Uhr

**1090 Wien, Währinger Str. 17, "Kavalierstrakt",
1. Stock, Victor-Franz-Hess Hörsaal**