

EINLADUNG

zum Vortrag von

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Nanostructures formed on surfaces and thin films by individual impacts of slow highly charged ions

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Dienstag, 14. Dezember 2010, um 17.00 Uhr

Ort: Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

Barrierefreier Zugang: Boltzmannngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals

Abstract:

Highly charged ions (HCI) carry a large amount of potential energy. Upon interaction with solid surfaces the HCI deposit their potential energy within a very short time (a few fs) within a nanometer size volume close to the surface. It is therefore not astonishing that surface modifications with nanometer dimensions have been demonstrated for the impact of individual slow highly charged ions on various surfaces.

These nanostructures have been observed not only on insulator surfaces and oxides but also on semiconductors and even conducting substrates. Depending on the type of material, the amount of (potential) energy pumped into the topmost layers of the surface and other factors these nanostructures appear either as hillocks, craters/pits or caldera like structures. The size (e.g. volume, diameter, height/depth) of the generated nanostructures is nearly independent of the kinetic energy of the impinging HCI but strongly depends on the potential energy deposited by the HCI into the surface. The onset of nanostructure formation is usually only found above a clear and well-defined threshold in potential energy, which can be attributed to a phase change. For possible applications in nanofabrication we currently attempt to control the production of material modifications on surfaces and thin films with well-defined size in the nanometer region by a variation of the HCI's potential energy.

Der Vortrag findet im Anschluss an die Jahreshauptversammlung
der Chemisch-Physikalischen Gesellschaft statt

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