



Fakultätskolloquium

gemeinsam mit dem

**Naturwissenschaftlich-Theoretischen Zentrum
im Rahmen des NTZ-Workshops „CompPhys05“**

***Am Donnerstag, dem 1. Dezember 2005, 17:15 Uhr
spricht im Kleinen Hörsaal der Fakultät, Linnéstr.5, 04103 Leipzig***

Herr Prof. Dr. Kurt Binder

Institut für Physik der Johannes-Gutenberg-Universität Mainz

über

New Interface-Controlled Phase Transitions in Nanosystems

Alle Interessenten sind herzlich eingeladen.

*Prof. Dr. T. Butz
Dekan*

*Prof. Dr. W. Janke
Direktor des NTZ*

Due to the current trend towards nanotechnology, the properties of systems "in between" bulk matter and single atoms and molecules become important. In a treatment of such systems in the framework of statistical mechanics, finite-size effects and surface effects become of outmost importance, as well as statistical fluctuations. Computer simulation is a very adequate tool to solve such tasks. These considerations are exemplified with studies of simple models where surface effects stabilize phase coexistence, and new types of phase transitions occur in special limiting cases. These phase transitions in a long cylinder or bipyramid geometry are related to wedge or cone filling transitions, and have unconventional critical behavior. Simulation results are interpreted by phenomenological extensions of finite-size scaling theory. The extent to which these phenomena can be observed in real systems will be briefly discussed.

*Alle Besucher und Gäste dieses Fakultätskolloquiums sind hiermit zu einer
Gespächs-Kaffee-Runde mit Herrn Prof. Dr. K. Binder
während der Poster-Session und Kaffeepause des NTZ-Workshops CompPhys05
(<http://www.physik.uni-leipzig.de/~janke/CompPhys05/>)
in der Aula des Fakultätsgebäudes Linnestr. 5 herzlich eingeladen.*