

KOLLOQUIUM ÜBER NEUERE ARBEITEN AUF DEM GEBIETE
DER MECHANIK UND STRÖMUNGSLEHRE
an der Technischen Universität Wien

EINLADUNG

zum Vortrag von Herrn

Dr. Manoranjan MISHRA

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über

**“Miscible Viscous Fingering of a Finite Slice in Liquid
Chromatographic Columns”**

Zeit: Mittwoch, 8. Oktober 2008, 16:00 Uhr c.t.

Ort: SEM 322

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Miscible Viscous Fingering of a Finite Slice in Liquid Chromatographic Columns

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When the viscosity of the sample injected in a liquid chromatographic column is different from that of the carrier liquid, a hydrodynamic instability occurs at that sample/carrier interface where the more viscous fluid is displaced by the less viscous one. The latter penetrates into the more viscous zone, forming some kind of fingers, hence the name "viscous fingering" (VF) given to this instability. This may cause a distortion of the peak shapes and, generally, a decrease in separation performances. A theoretical description of the growth rate will be given and the typical size of the perturbations induced by this instability in the chromatographic context will be explained. The numerical simulation of the non-linear fingering phenomena in a Hele-Shaw cell with the effects of adsorption of the solute onto the porous matrix will be discussed.