



University of Nova Gorica

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**VABILO NA ČETRTOV KOLOKVIJ /
INVITATION TO "THURSDAY LECTURE"**

*Raziskave nanostruktur s področij znanosti o materialih,
kemije in biologije / Study of Nanostructures in the fields
of Materials Science, Biology and Chemistry*

dr. Sigrid Bernstorff
Sincrotrone Trieste, Italija

Četrtek, 13. 12. 2007 ob 15:00 / Thursday, 13. 12. 2007 at 15:00
Predavalnica P7 Univerze v Novi Gorici /
Lecture hall P7 at University of Nova Gorica

Predavanje bo v angleščini / Lecture will be held in English:

Small-Angle X-ray Scattering (SAXS) is a well-established and widely used nondestructive technique for the characterization of non-crystalline or partly ordered materials. SAXS provides structural information in the size range between about 1 and a few hundred nm, and can be applied to a huge variety of systems: from semiconductors and metal alloys to polymers, from colloids to micelles and micro-emulsions, and from porous media to liquid crystals.

Grazing-incidence small-angle X-ray scattering (GISAXS) measurements are sensitive to both the surface morphology and the internal structure of films, and provide information both about lateral and normal ordering at a surface or inside a thin film. Possible applications include thin polymer films, nanoparticles at interfaces or on surfaces, and semiconductor nanostructures. As a result, GISAXS provides an excellent complement to more conventional nanoscale structural probes such as atomic force microscopy and transmission electron microscopy.

The full potential of these techniques is realized when using a synchrotron source and when patterns are recorded with low-noise, fast two-dimensional detectors. Microbeam applications as well as in-situ and real-time studies of e.g. nanoparticle formation and growth in the (sub)millisecond range are possible. Several examples of rapidly evolving research areas will be presented in order to highlight the possibilities of the SAXS and GISAXS techniques.