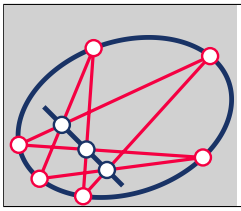

**Institut für Geometrie**
**Technische Universität Graz**

TU Graz

**Einladung zu Vorträgen am Donnerstag, den 14. Juni 2007**

im Seminarraum 2 des Instituts für Geometrie, Kopernikusgasse 24 (4. Stock)

**15:30 Nira Dyn: Approximation of set-valued functions**

**Kaffeepause**

**16:45 Philipp Grohs: Nonlinear interpolatory subdivision schemes**

*Abstract: Approximation of set-valued functions*
(Prof. N. Dyn, School of Mathematical Sciences, Tel Aviv University).

Motivated by the problem of the approximation of a 3D object from a finite number of its parallel cross-sections, we regard the object as a univariate set-valued function with images the parallel cross sections of the object, which are 2D sets. In this setting the above problem is equivalent to the approximation of a univariate set-valued function with 2D sets as images, from a finite number of its samples. We study approximation operators which are obtained as adaptation to set-valued functions of classical approximation operators for real-valued functions based on a finite number of samples, such as interpolation operators, the Schoenberg Spline operators, and the Bernstein operators. Various adaptations of the classical operators to set-valued functions and their approximation properties will be presented.

This talk reports on joint work with E. Farkhi and A. Mokhov.

*Abstract: Nonlinear interpolatory subdivision schemes*
(P. Grohs, Institut für Geometrie, TU Graz).

Interpolatory subdivision schemes are useful in geometric modeling as well as in the definition of 'lazy' wavelet transforms. The handling of data which naturally lie in nonlinear geometries (e.g. points on a surface, elements of a Lie group, or diffusion tensors in medical imaging) requires that the methods for handling of data in vector spaces are redefined so as to work in the nonlinear setting. This talk discusses methods of analysis concerning the smoothness of such subdivision schemes and the wavelet-type transforms derived from them.

J. Wallner