IU^B International University Bremen

Mathematics Colloquium
at IUB

Vladimir M. Tikhomirov

(Moscow State University and IUB)

will speak on

Duality and Calculus of Convex Objects
(Theory and Applications)

Date:	**Monday, February 27, 2006**
Time:	**17:15**
Place:	**Lecture Hall Research II, IUB**

Abstract:
We present a new approach to convex calculus, which enables us to consider duality and various versions of convex calculus from a unified point of view. It is based on the possibility to associate to every convex object (a convex set or a convex function) a certain convex cone, without loss of information. By means of a general construction, a complete list of binary operations on the basic convex objects is determined (which leads to four new operations, on convex functions and on affine manifolds). Moreover, we use in a systematic way that the algebraic sum and the intersection of two convex sets can be viewed as the image and inverse image of the cartesian product of these sets under suitable linear operators. In this way, we succeed in reducing all duality relations and convex calculus formulas for dual objects to the duality and calculus for cones, which leads to an exhaustive list of the formulas of convex calculus. In the second part of the talk applications to analysis, geometry and approximation theory will be discussed.

Colloquium Tea at ca. 16:45 in the Tea Room of Research II, close to the lecture hall. Everybody is welcome!

M. Stoll