Invited session:

Variational Inequalities and Proximal-like Methods
organized by R. Tichatschke

Motivation

Variational inequalities with maximal monotone operators include convex programs, complementarity problems, convex-concave saddle point problems, equations and inclusions with maximal monotone operators and a series of other problems.
The proximal point method, introduced by MARTINET and later on investigated in a more general setting by ROCKAFELLAR has initiated a couple of new algorithms for solving these problems. We refer to

- algorithms based on multiplier methods;
- modifications of the penalty technique;
- proximal variants of bundle methods for non-smooth convex optimization problems;
- decomposition- and parallel optimization methods;
- proximal point algorithms and connections to the auxiliary problem principle;
- proximal point methods with nonquadratic distances, in particular Bregman-function-based proximal methods.

Moreover, it is known that some classical numerical methods can be interpreted as special applications of these approaches, for instance, the Douglas-Rachford splitting method for finding a zero of the sum of two monotone operators.
We are also interested in new applications of the proximal technique, in particular, to problems in mathematical physics.

We are going to invite and to participate scientists and students working on the areas described above.