

Stanislaw Migorski (Jagiellonian University, Polonia)

“Elliptic Quasi-Variational-Hemivariational Inequalities with Application.”

Authors: Stanislaw Migorski and Sylwia Dudek.

Abstract: We study a new class of quasi-variational-hemivariational inequalities in reflexive Banach spaces. The inequalities contain a convex potential, a locally Lipschitz superpotential, and an implicit obstacle set of constraints. Solution existence and compactness of the solution set to the inequality problem are established based on the Kakutani-Ky Fan fixed point theorem. The applicability of the results is illustrated by the steady-state Oseen model of a generalized Newtonian incompressible fluid with mixed boundary conditions. The latter involve a unilateral boundary condition, the Navier slip condition, a nonmonotone version of the nonlinear Navier-Fujita slip condition, and the threshold slip and leak condition of frictional type.