KARL-FRANZENS-UNIVERSITÄT GRAZ
UNIVERSITY OF GRAZ

Institute of Mathematics and Scientific Computing

INVITATION

to the talk of

Christian Clason

(Universität Duisburg Essen)

Title: A primal-dual extragradient method for nonlinear inverse problems for PDEs

Time: Wednesday, 28th of September, 2016, 11:00

Place: SR 11.34, Heinrichstraße 36, 3rd floor, 8010 Graz

Institute of Mathematics and Scientific Computing

Abstract:

This talk is concerned with the extension of the popular primal-dual extragradient method to nonsmooth inverse problems involving nonlinear forward operators between function spaces. The proof of local convergence rests on verifying the Aubin property of the inverse of a monotone operator at the minimizer, which is difficult as it involves infinite-dimensional set-valued analysis. However, for nonsmooth functionals that are defined pointwise - such as indicator functions or L^1-type norms - it is possible to apply simpler tools from the finite-dimensional theory, which allows deriving explicit conditions for the convergence. Numerical examples illustrate the convergence behavior.

This is joint work with Tuomo Valkonen (University of Liverpool).