**Johann Radon Institute for
Computational and Applied Mathematics
Austrian Academy of Sciences (ÖAW)**

RICAM
JOHANN·RADON·INSTITUTE
FOR COMPUTATIONAL AND APPLIED MATHEMATICS

Group Seminar

Inverse Problems and Mathematical Imaging

Generalized ill-posed problems and its applications

Dr. Oleksandr Pokutnyi, Kiev Institute of Mathematics within EU-project AMMODIT

Tuesday, September 11, 2018, 10:00
JKU, SP2, 416-2

Abstract

The presentation is devoted to obtaining the necessary and sufficient conditions of the existence of solutions of operator equations in the Frechet, Banach and Hilbert spaces. The concepts of strong Moore-Penrose pseudoinvertible and strong generalized invertible operators are proposed for the operators with nonclosed set of values. It is proved that any linear bounded operator in Hilbert spaces has a strong Moore-Penrose pseudoinverible. Using developed technique linear and weakly nonlinear operator equations are investigated. Bifurcation and branching conditions of solutions of the Schredinger, van der Paul and difference equation in the Hilbert spaces are found.