

COLLOQUIUM
CENTER FOR APPLIED MATHEMATICS AND SCIENCE
DEPARTMENT OF MATHEMATICS
UNIVERSITY OF WEST GEORGIA

11:00 AM, WEDNESDAY, NOVEMBER 12, 2014, BOYD 306

Speaker: Dr. A. Smirnova
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Georgia State University
Atlanta, GA

Title: On Generalized Cross Validation for Stable Parameter Selection in Disease Models

Abstract: In collaboration with Maia Martcheva (University of Florida) and Hui Liu (Georgia State University), we study advantages and limitations of the Generalized Cross Validation (GCV) approach for selecting a regularization parameter in the case of a partially stochastic linear irregular operator equation. The research has been motivated by an inverse problem in epidemiology, where the goal was to reconstruct a time dependent treatment recovery rate for *Plasmodium falciparum*, the most dangerous form of malaria. Initial numerical simulations gave rise to a theoretical analysis of the expected value of the GCV function and the efficiency of the GCV method for different noise levels. It was shown that, as opposed to L-curve, the GCV does not necessarily generate a systematic error in the value of the regularization parameter for Tikhonov's stabilizing algorithm.

All are welcome.