ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

Computation of eigenvalues for operators in an all-at-once formulation

Anna Schlintl | Universität Klagenfurt

Chaired by Barbara Kaltenbacher | Department of Mathematics

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https://classroom.aau.at/b/anw-ezd-k9g

ABSTRACT

The all-at-once formulation for inverse problems has recently been considered. The advantages of this approach include the avoidance of a parameter-to-state map and numerical improvements compared to the reduced setting. We want to find out about the eigenvalues of such operators formulated in an all-at-once fashion (i.e. putting the model and the observation equation in a joint model resulting in a block operator matrix). By means of an inverse source problem and the backward heat equation we perform the eigenvalue analysis both analytically and numerically. The operators of interest are transformed such that they are symmetric with respect to an L2-related inner product. It can be shown that the resulting operators lead to approximate eigenvalues, which can be computed in an analytic way. Finally, the problems are discretized and the analysis is done numerically.

We hope to see you there!