Einladung zum Oberseminar Wissenschaftliches Rechnen

Julius-Maximilians-Universität Würzburg
Lehrstuhl für Wissenschaftliches Rechnen IX

Jun.-Prof. Dr. Anne Wald

Georg-August-Universität Göttingen
Arbeitsgruppe für Angewandte Mathematik in den Naturwissenschaften

Time-dependence as modelling inexactness in inverse problems: regularization and application in dynamic imaging

Many applied inverse problems are inherently dependent on time, for example due to a change in the physical setup or because of a motion or deformation of an investigated object. This time-dependence often leads to complex physical models and, accordingly, to a high computational effort during the numerical solution of such inverse problems.

In order to overcome these obstacles, we aim at using simplified forward operators and interpret the dependence on time as an inexactness in the model, which we incorporate into the regularization scheme. An extension of sequential subspace optimization techniques in combination with Kaczmarz' method towards inverse problems with an inexact forward model not only provides a regularized solution of such problems, but yields an additional speed-up in comparison to, e.g., the Landweber iteration. Dynamic computerized tomography, in particular nanoscale CT imaging of metal alloys, serves as an example to evaluate these methods.

Ort: Zoom Videokonferenz | Zeit: Mittwoch, 07.07.2021, 14:00 Uhr

Zu diesem Vortrag laden wir Sie herzlich ein.
You are cordially invited to this lecture.

gez. Prof. Dr. Alfio Borzì
gez. Prof. Dr. Frank Werner