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## **Tikhonov regularization with oversmoothing penalty: phenomena, convergence and rates**

*Thursday, 7 November 2019 16:40 (40 minutes)*

The presentation is devoted to Tikhonov regularization under conditional stability estimates for nonlinear ill-posed operator equations in Hilbert scales. Our focus is on the case of oversmoothing penalties, for which the true solution no longer attains a finite value. In this context, we present some new results on convergence and recall assertions on rates. We strongly highlight the local character of conditional stability estimates for nonlinear problems and demonstrate that pitfalls may occur. Then convergence can completely fail and the stabilizing effect of conditional stability may be lost. Numerical case studies for some nonlinear examples illustrate such effects.

This talk presents joint work with Peter Mathé (Berlin), Robert Plato (Siegen), Daniel Gerth and Christopher Hofmann (Chemnitz). Research is supported by the Deutsche Forschungsgemeinschaft (DFG) under grant HO 1454/12-1.

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