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Peter Elbau* (peter.elbau@univie.ac.at), Computational Science Center, University of Vienna, Oskar-Morgenstern-Platz 1, 1090 Vienna, Vienna, Austria. *Optimal Convergence Rate Results for Linear Inverse Problems.*

(joint work with V. Albani, R. Andreev, M. de Hoop, L. Qiu, O. Scherzer)

A lot of tasks in signal processing and imaging turn out to be (linear) inverse problems. The typical way to attack these problems is by choosing a suitable regularisation method and calculating a regularised solution of the problem which is stable with respect to noise and which will converge to the minimum-norm solution of the problem as the error in the data and the regularisation parameter properly tend to zero.

In this talk, we want to study the rate of this convergence in the Hilbert space setting. To obtain such rates, various a priori assumptions on the minimum-norm solution were suggested: for example classical (Groetsch), variational (Hofmann, Kaltenbacher, Pöschl, Scherzer), and approximative source conditions (Hofmann, Mathé).

We intend to generalise Neubauer's result on the equivalence between convergence rates and the spectral components of the minimum-norm solution to get equivalence results between the variational or approximative source conditions (the classical conditions are known to be more restrictive) and arbitrary convergence rates for general regularisation methods. (Received September 23, 2015)