1014-45-386 **Gerd Teschke*** (`teschke@zib.de`), Konrad-Zuse Zentrum fuer Informationstechnik, Berlin, Takustr. 7, D-14195 Berlin, Germany. *Solving nonlinear inverse problems by multi-frame based shrinkage iterations.*

This talk is concerened with nonlinear inverse problems where the solution is assumed to have a sparse expansion with respect to several preassigned bases or frames. We develop a scheme which allows to minimize a Tikhonov functional where the usual quadratic regularization term is replaced by one–homogeneous (typically weighted sequence norms) penalties on the coefficients (or isometrically transformed coefficients) of such multi–frame expansions. The computation of the solution amounts in this setting to a system of Landweber–fixed–point iterations with thresholding applied in each fixed–point iteration step. (Received September 14, 2005)