

Dynamic Inverse Problems: Efficient Algorithms and Approximate Inverse

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Abstract

We consider dynamic problems, where the investigated object is allowed to change during the measurement. Hence we regularize both the spatial and the temporal behaviour of the solution. In a first step we show how two different regularization terms can be coupled in a Tikhonov regularization approach such that an efficient solution for underdetermined problems is possible. Especially we consider temporal smoothness of the object. We apply the results to tomography problems and to current density reconstructions. Finally we study this approach as special case of the approximate inverse regularization method.