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Adaptive Cross Approximation for Ill-Posed Problems

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Ill-posed problems require regularization to be solved. That is, it is necessary to project the problem onto a suitable subspace damping the influence of small singular values. Adaptive cross approximation is capable to identify low-rank approximations and, thus, reduce the number of small singular values.

In the talk we will demonstrate that this in fact works and what is needed additionally to obtain an efficient working solver.

Chebfun uses adaptive cross approximation for computing the singular value expansion of operators. We will use Chebfun to generalize the ideas above from matrices to integral operators.

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