Collocation and Fredholm Integral Equations of the First Kind

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Abstract:

We consider the problem of numerical inversion of Fredholm integral equations of the first kind via piecewise interpolation. One of the most important aspects of this technique is the choice of grid and collocation points. Theoretical results are developed which identify an optimal strategy for the distribution of collocation points for piecewise constant interpolation. The method, as outlined, can be readily extended to higher order schemes.

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