



A LEAST SQUARES FUNCTIONAL FOR SOLVING INVERSE STURM-LIOUVILLE PROBLEMS

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We introduce a variational algorithm, which solves the classical inverse Sturm-Liouville problem when two spectra are given. In contrast to other approaches, it recovers the potential as well as the boundary conditions without a priori knowledge of the mean of the potential. Numerical examples show that the algorithm works quite reliable, even in the presence of noise. We finally prove the absence of strict local minimizers of the functional and moreover exponential convergence when the initial guess is sufficiently close.