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Convergence of the Iterative **Rational Krylov Algorithm**

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(Submitted on 27 Jul 2011)

The Iterative Rational Krylov Algorithm (IRKA) of [8] is an interpolatory model reduction approach to the optimal \$\mathcal{H}_2\$ approximation problem. Even though the method has been illustrated to show rapid convergence in various examples, a proof of convergence has not been provided yet. In this note, we show that in the case of state-space symmetric systems, IRKA is a locally convergent fixed point iteration to a local minimum of the underlying \$\mathcal{H}_2\$ approximation problem.

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