

On a Nonlocal Integral Operator Commuting with the Laplacian and the Sturm-Liouville Problem: Low Rank Perturbations of the Operator

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We reformulate all general real coupled self-adjoint boundary value problems as integral operators and show that they are all finite rank perturbations of the free space Green's function on the real line. This free space Green's function corresponds to the nonlocal boundary value problem proposed by Saito in 2008. These are polynomial perturbations of rank up to 4. They encapsulate in a fundamental way the corresponding boundary conditions. (This is joint work with Naoki Saito, University of California, Davis)

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