

CRUNCH Seminars at Brown, Division of Applied Mathematics

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From bi-parametric operator preconditioning to operator learning

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The operator preconditioning framework is a general technique for providing efficient Galerkin schemes. Recently, bi-parametric operator preconditioning theoretical results have paved the way for highly compressed preconditioners. Bi-parametric schemes have been successfully applied to electromagnetic and acoustic scattering, leading to provably stable convergence bounds for iterative solvers. In this talk, we will present the operator preconditioning theory. We will demonstrate that the theory naturally leads to operator learning paradigm and discuss further steps toward implementing data-centric solvers.