Numerical Analysis and Scientific Computing Seminar

Rayleigh Quotient Optimizations and Eigenvalue Problems

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Abstract: Many computational science and data analysis techniques lead to optimizing Rayleigh quotient (RQ) and RQ-type objective functions, such as computing excitation states (energies) of electronic structures, robust classification to handle uncertainty and constrained data clustering to incorporate domain knowledge. We will discuss emerging RQ optimization problems, variational principles, and reformulations to algebraic linear and nonlinear eigenvalue problems. We will show how to exploit underlying properties of these eigenvalue problems for designing fast eigensolvers, and illustrate the efficacy of these solvers in applications.

Friday, November 13, 2020, 2:40 pm
https://emory.zoom.us/j/95900585494

Mathematics
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