



Mathematics and CS Seminar

Regularization of non-Hermitian matrices by noise

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ISTA

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The spectrum of a general non-Hermitian (non-normal) matrix is unstable; a tiny perturbation of the matrix may result in a huge difference in its eigenvalues. This instability is often quantified as eigenvalue condition numbers in numerical linear algebra or as eigenvector overlap in random matrix theory. In this talk, we show that adding a random noise matrix regularizes this instability, by proving a nearly optimal upper bound of eigenvalue condition numbers. We will also discuss the pseudospectrum of a randomly perturbed matrix and its connection to the condition number. This talk is based on joint works with László Erdős.

Monday, October 23, 2023 05:00pm - 06:00pm

Mondi 2 (I01.01.008), Central Building



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