Eigenvector non-orthogonality in non-Hermitian random matrices: theory and applications

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Abstract.

Non-Hermitian random matrices are generically non-normal, so are characterized by bi-orthogonal set of left and right eigenvectors. The corresponding non-orthogonality overlap factors are responsible, in particular, for controlling stability of eigenvalues against additive perturbations. The statistics of these factors, originally studied by J. Chalker and B. Melig in 1998 for the complex Ginibre ensemble, has been actively investigated for a number of models in recent years. I plan to present some results in this area as well as briefly discuss a few examples of nonorthogonality showing up in characteristics of some physical systems.