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Spiked random matrices

Spiked models are finite rank perturbations of large Wigner or sample covariance matrices; they have received a fair bit of attention since the discovery eight years ago of a certain phase transition phenomenon. The phase transition is in the behaviour of the largest eigenvalues and corresponding eigenvectors as a function of the perturbation. I will describe various ways to approach and understand this phenomenon and survey some results, including joint work with B. Virág as well as with A. Knowles, H.-T. Yau and J. Yin.