



## Mathematics and CS Seminar

# Linear Eigenvalue Statistics at the Cusp

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Host: Laszlo Erdős

We establish universal Gaussian fluctuations for the mesoscopic linear eigenvalue statistics in the vicinity of the cusp-like singularities of the limiting spectral density for Wigner-type random matrices. Prior to this work, the linear eigenvalue statistics at the cusp-like singularities were not studied in any ensemble. Our analysis covers not only the exact cusps but the entire transitional regime from the square-root singularity at a regular edge through the sharp cusp to the bulk. We identify a new one-parameter family of functionals that govern the limiting bias and variance, continuously interpolating between the previously known formulas in the bulk and at a regular edge. Since cusps are the only possible singularities besides the regular edges, our result gives a complete description of the linear eigenvalue statistics in all regimes.

**Tuesday, December 5, 2023 04:15pm - 05:15pm**

Heinzel Seminar Room (I21.EG.101), Office Building West, ISTA



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