
ATHENS *P*ROBABILITY COLLOQUIUM

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“Operator limits of random matrices”

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Abstract: In recent years, a new approach emerged to understanding large random matrices. As the dimension tends to infinity, a certain random self-adjoint operator appears as the limit of finite matrices. This operator has more structure than just the eigenvalues.

This approach has been helpful in solving an old problem of Dyson about eigenvalue repulsion, and in the construction of a random self-adjoint operator for the celebrated Sine kernel process. Its eigenvalues are conjectured to agree with the zeros of the Riemann zeta function seen from a random point on the critical line.

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