Titel: From Anderson models to GOE statistics

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Abstract:
We construct a sequence of random matrices with randomness of fixed strength (disorder) only along the diagonal (Anderson model) for which we find limiting GOE statistics (Sine_1 kernel). This result is based on transfer-matrix techniques and a general SDE limit result for products of random matrices. First the SDE limit techniques can be used to obtain limiting statistics for Anderson models on long strips under proper rescaling of the randomness. With the correct sequence of limits we obtain a random matrix ensemble and finally the Sine_1 kernel. Finally we construct a sequence of graphs (antitrees) where some averaging effect of a random potential mimics the rescaling of the randomness in the step before.