

Random matrix theory is at the intersection of linear algebra, probability theory and integrable systems, and has a wide range of applications in physics, engineering, multivariate statistics and beyond. This volume is based on a Fall 2010 MSRI program which generated the solution of long-standing questions on universalities of Wigner matrices and beta-ensembles, and opened new research directions especially in relation to the KPZ universality class of interacting particle systems and low-rank perturbations. The book contains review articles and research contributions on all these topics, in addition to other core aspects of random matrix theory such as integrability and free probability theory. It will give both established and new researchers insights into the most recent advances in the field and the connections among many subfields.



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Random Matrix Theory, Interacting Particle Systems  
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**Random Matrix Theory,  
Interacting Particle Systems  
and Integrable Systems**

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