INTRODUCTION TO RANDOM MATRIX THEORY

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Any field of mathematics can be randomized and studied from a probabilistic perspective. The challenge though is to discover the limit laws and universality classes. Random matrix theory, mainly initiated by Eugene Wigner in 1950's, was developed to understand the spectrum of large random Hermitian matrices. These matrices supposedly modeled and approximated Hamiltonians of heavy nuclei. The subject has since grown into a vast area of mathematics and mathematical physics with many applications to pure and applied math as well as theoretical physics. While my own interest in the subject stems from questions in noncommutative geometry and quantum gravity, this talk will focus on some of the most basic ideas of the theory.