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Tensor Models

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Matrix models, seen as quantum field theoretical models, are known to represent a successful approach to 2D quantum gravity and to have many other interesting applications in Physics. Some of the main results of the study of matrix models in theoretical physics are the 't Hooft large N limit (the perturbative series can be reorganized in powers of 1/N (N being the matrix size) and the double scaling limit mechanism (known to be related to the continuous limit of the models). After a brief introduction dedicated to matrix models, I will focus in this talk on tensor models, which are a natural quantum field theoretical generalization of matrix models. In particular, I will present the implementation of the large N limit (N being now the size of the tensor) and the double scaling limit mechanisms for various tensor models. In the last part of the talk, I will present how tensor models have been related (initially by Witten and then shortly after by Klebanov and Tarnopolsky) to the Sachdev-Ye-Kitaev model, which is known to be a particularly interesting toy model for holography

Orateur: Prof. TANASA, Adrian (Université de Bordeaux)