From non-commutative quantum field theory to tensor models and Combinatorial Physics - my scientific interactions with Vincent Rivasseau

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Abstract

In this talk I will briefly review some of the results I have obtained in collaboration with Vincent Rivasseau during these last (almost) 10 years.

I have started working with Vincent on the implementation of the parametric representation of Feynman ampltudes of a certain field theoretical model on the non-commutative Moyal space. The most important result we had together (so far) was then the proof of renormalization of a translation-invariant non-commutative model. During the last years, I have started working in collaboration with Vincent and others on a certain 3D generalization of matrix models, the so-called multi-orientable random tensor model.
Moreover, Vincent and I (as well as Alan Sokal, amongst others) are involved in the creation (and the current functioning) of the latest IHP Annal, journal dedicated to the growing interface between Combinatorics and Physics. I will present this project and Vincent's contribution to its success.

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