ESI Erwin Schrödinger International Institute for Mathematics and Physics

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DVR 0065528

Seminar

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The finite cubic-quartic matrix model

Wednesday, June 7, 2023

at 11:00 h

ESI, Schrödinger Lecture Hall

Abstract: Among the scalar field matrix models with coupling to an external field more results are known for the cubic (Kontesevich) model than for the quartic (Grosse-Wulkenhaar) model (e.g. integrability). We construct a Hybric cubic-quartic matrix model with four and three point interactions, the later is coupled to a positive matrix M and makes the model solvable. First, we derive Feynman rules and calculate the perturbative expansions of some multipoint functions. Second, we calculate the path integral of the partition function and obtain exact solutions for the one point function with one boundary, the two point functions with one as well as two boundaries and the n-point functions with n boundaries. They include contributions from non-planar as well as higher genus Feynman diagrams.

H. Grosse, A. Sako

June 5, 2023