Seminar/Talk

Dimerization in a quantum spin chain

Jakob Bjoernberg

Chalmers University of Technology

Host: M. Beiglböck, N. Berestycki, L. Erdös, J. Maas, F. Toninelli, E. Schertzer

This talk concerns the phenomenon of symmetry-breaking in statistical physics, particularly "dimerization" where the broken symmetry is that of translation-invariance. After reviewing the main ideas of symmetry-breaking in statistical physics, I will describe a quantum spin system in one dimension where we prove that dimerization occurs. The model considered here can be seen as a perturbation of a model for which Aizenman, Duminil-Copin and Warzel recently proved dimerization for all spins larger than 1/2. In our case, we prove dimerization for large enough spin. The proof uses a probabilistic representation in terms of a collection of random loops and a cluster-expansion. Based on the paper arXiv:2101.11464 which is joint work with Peter Mühlbacher, Bruno Nachtergaele and Daniel Ueltschi.

Wednesday, March 29, 2023 03:45pm - 04:45pm
Mondi 2 (I01.01.008), Central Building

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