Seminar/Talk

Dimers and embeddings

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Host: M. Beiglböck, N. Berestycki, L. Erdös, J. Maas

One of the main questions in the context of the universality and conformal invariance of a critical 2D lattice model is to find an embedding which geometrically encodes the weights of the model and that admits nice discretizations of Laplace and Cauchy-Riemann operators. We establish a correspondence between dimer models on a bipartite graph and circle patterns with the combinatorics of that graph. We describe how to construct a 't-embedding' (or a circle pattern) of a dimer planar graph using its Kasteleyn weights, and introduce the definition of discrete holomorphicity on such an embedding. We discuss a concept of perfect t-embeddings of weighted bipartite planar graphs. We believe that these embeddings always exist and that they are good candidates to recover the complex structure of big bipartite planar graphs carrying a dimer model. Based on: Dimers and Circles joint with R. Kenyon, W. Lam, S. Ramassamy; Dimer model and holomorphic functions on t-embeddings of planar graphs joint with D. Chelkak, B. Laslier.

Tuesday, October 29, 2019 05:30pm - 06:30pm
Heinzel Seminar Room / Office Bldg West (I21.EG.101)

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