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Richard Kenyon*, Math dept., Yale University, New Haven, CT 06520. *The multi tiling model*. Preliminary report.

Given a graph G and collection of connected subgraphs T (called tiles), we consider covering G with copies of tiles in T so that each vertex of G is covered with a predetermined multiplicity. The multitiling model is a natural probability measure on such configurations.

In the limit of large multiplicities we compute the asymptotic growth rate of the number of multihilings: the free energy of the multitiling model. We will show that the individual tile densities tend to a Gaussian field with respect to an associated discrete Laplacian. We also find an exact discrete Coulomb gas limit when we vary the multiplicities. This is joint work with Andrei Pohoata (Yale). (Received January 05, 2021)