Plenary Session: Geometry of dimer models

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Random dimer coverings of large planar graphs are known to exhibit unusual and visually apparent asymptotic phenomena that include formation of frozen regions and various phases in the unfrozen ones. For a specific family of subgraphs of the (periodically weighted) square lattice known as the Aztec diamonds, the asymptotic behavior of dimers admits a precise description in terms of geometry of underlying Riemann surfaces. The goal of the talk is to explain how the surface structure manifests itself through the statistics of dimers. Based on joint works with T. Berggren and M. Duits.

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