Matrix orthogonal polynomials and random tilings

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The talk is about certain matrix polynomials with non-hermitian orthogonality on a contour in the complex plane. These matrix orthogonal polynomials arise in the analysis of random tilings of planar domains with periodic weightings. I will focus on a particular case of a three-periodic lozenge tiling of a hexagon. The matrix orthogonality is used to obtain the Arctic curves that separate the asymptotic phases of the model, known as the frozen, smooth and rough phases.