

Integrability of Miquel dynamics on circle patterns

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Circle patterns are one of the ways to uniformize graphs on surfaces, by embedding them in such a way that every face admits a circumcircle. In this talk I will describe a discrete-time dynamical system on circle patterns with the combinatorics of the square grid. This dynamics, based on the classical six-circles theorem of Miquel, is called Miquel dynamics. I will describe a reduction of Miquel dynamics to the dimer integrable system, which implies that Miquel dynamics is a discrete integrable system governed by the octahedron recurrence.

This is joint work with Richard Kenyon (Brown University), Wai Yeung Lam (University of Luxemburg) and Marianna Russkikh (University of Geneva).