

BI-CO MATHEMATICS COLLOQUIUM

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“Lattice models and symmetric functions”

Monday, November 2, 2015

Talk at 4:00 – H109

Tea at 3:30 – KINSC Math Lounge, H208

Abstract:

We will discuss lattice models arising from statistical mechanics: lozenge tilings (dimer covers of a hexagonal lattice), 6-vertex model, dense loop model. They are rich in combinatorial and probabilistic properties. We will describe their limiting behavior as the lattice size goes to ∞ and see the arising phenomena -- limit shapes (surfaces), arctic circles, distributions from Random Matrices near the boundary. Proving such probabilistic properties brings in yet another field in play. It can be done with some asymptotic analysis of symmetric functions -- objects from representation theory and algebraic combinatorics.

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