1139-60-428   **Evgeni S Dimitrov*** (`edimitro@mit.edu`), 550 Memorial Drive, Apt 2E, Cambridge, MA 02139.

Log-gases on a quadratic lattice via discrete loop equations and q-boxed plane partitions.

I will discuss a general class of log-gas ensembles on a quadratic lattice. Under suitable scaling, the corresponding empirical measures satisfy a law of large numbers and their global fluctuations are Gaussian with a universal covariance that matches the one for continuous log-gases.

The general results find application in the asymptotic analysis of q-boxed plane partition models introduced by Borodin, Gorin and Rains. For these models, one can compute the law of large numbers for the height function and identify its global fluctuations on a fixed slice with a one-dimensional section of a pullback of the two-dimensional Gaussian free field.

The approach is based on a q-analogue of the Schwinger-Dyson (or loop) equations, which originate in the work of Nekrasov and his collaborators, and extends the methods developed by Borodin, Gorin and Guionnet to a quadratic lattice.

This is joint work with Alisa Knizel. (Received February 18, 2018)