

Systèmes intégrables, modèles et algèbres exactement solubles
19 septembre – 7 octobre 2022

Integrable systems, exactly solvable models and algebras
September 19 – October 7, 2022

Lauren K. Williams
(Harvard University)

Combinatorics of hopping particles and positivity in Markov chains

The asymmetric simple exclusion process (ASEP) is a model for translation in protein synthesis and traffic flow; it can be defined as a Markov chain describing particles hopping on a one-dimensional lattice. I will give an overview of some of the connections of the stationary distribution of the ASEP to combinatorics and special functions. I will also mention some open problems and observations about positivity in Markov chains.

For my other two lectures (in weeks 1 and 2, respectively), my titles will be:

- * Macdonald polynomials and the ASEP, and
- * Schubert polynomials and the ASEP