

## Titles and abstracts

- *Graphes positivement multiplicatifs, théorie des représentations et marches dans les alcôves* (Cédric Lecouvey, Université de Tours)

*Abstract* : Les graphes multiplicatifs sont des graphes dont la matrice d'adjacence se plonge dans une sous-algèbre de matrices admettant une base particulière indexée par ses sommets et dont les coefficients de structure sont positifs (ou des polynômes à coefficients positifs). On peut construire facilement de tels graphes à partir de l'algèbre d'un groupe fini ou de son algèbre des caractères. D'autres constructions simples de ce type de graphes s'obtiennent à partir des bases classiques des fonctions symétriques. De façon plus subtile, on peut définir de nombreux graphes positivement multiplicatifs à partir des éléments de la grassmannienne affine associée à un groupe de Weyl affine. Ces graphes sont reliés à des modèles probabilistes et physiques intéressants (marches dans les alcôves, TASEP etc.). L'exposé consistera en une introduction à ces notions. Il s'agit d'un travail en commun avec J. Guilhot et P. Tarrago.

- *Shifted Schur functions* (Valentin Féray, CNRS et Université de Lorraine)

*Abstract* : Shifted Schur functions are a variant of Schur functions that are symmetric in  $x_1 - 1, x_2 - 2, \dots$  instead of the usual variables  $x_1, x_2, \dots$ . Unlike classical Schur functions, they satisfy a nice and useful vanishing property. I will define these objects and review some results, including a Pieri rule, a combinatorial formula, a product rule, the construction of Jack and Macdonald analogues (results obtained in the 90's by Okounkov, Olshanski, Knop, Sahi, Molev, Sagan). I will also state some open problems regarding these functions, including the ones suggested in the Cortipom proposal.

- *Cutoff results for the exclusion process* (Anna Ben-Hamou, Sorbonne Université)

*Abstract* : In this talk, we will present some known results about the mixing time of the simple exclusion process, in different settings. First, we will consider simple exclusion on the path, for which cutoff has been established for both the symmetric and asymmetric case (Lacoin 2016; Labbé and Lacoin 2019). Then, we will move to simple exclusion on the circle. In the symmetric case, cutoff has been established by Lacoin (2017). Finally, we will present a recent result of Schmid and Sly (2022), who showed that the mixing time of TASEP is of order  $n^{3/2}$ , and that there is no cutoff.

- *Spectral radius of non-Hermitian random matrices* (David García-Zelada, Sorbonne Université)

*Abstract :* We will be interested in random matrices with square-integrable and centered i.i.d. coefficients as their size tends to infinity. By a result of Tao and Vu (2010), it is known that the empirical spectral measure of these matrices, properly normalized, converges towards the uniform measure on the unit disk. Having this in mind, one may wonder if there are outliers “surviving” this convergence. This problem is naturally linked with the asymptotic behavior of the characteristic polynomial and, surprisingly, the latter is simpler to obtain. I will tell you, on this occasion, the details of the solution found in a joint work with Charles Bordenave and Djalil Chafaï.

- *TBA* (Guillaume Barraquand, CNRS et ENS Paris)
- *TBA* (Amol Aggarwal, Columbia University et IAS (Princeton))