

Journées Stint

Du mercredi 18 janvier 2017 au vendredi 20 janvier 2017
ENS de Lyon

Programme

Mercredi 12:00 – 14:00, à l'ENS

Accueil à l'ENS de Lyon, site Monod, salle B1. Déjeuner buffet.

Mercredi 14:00 – 17:00, à l'ENS

Exposé de Nicolas Bousquet, puis (longue) session de problèmes ouverts

Jedi 9:30 – 12:30, au LUG

Session graphes orientés, avec des exposés de Pierre Aboulker, Frédéric Havet et William Lochet

Jedi 12:30 – 14:00, à l'ENS

Déjeuner, cantine ENS

Jedi 14:00 – 15:00, à l'ENS

En salle B1, exposé de Patrice Ossona de Mendez

Jedi 15:30 – 16:15, à l'ENS

En salle passerelle, Galette des Rois du LIP

Jedi 16:15 – 17:00, à l'ENS

En salle B1, exposé de Louis Esperet.

Vendredi 9:30 – 12:30, au LUG

Session sous-graphes induits, avec des exposés de Rémi Joanis de Verclos, Khang Le et Nicolas Trotignon

Vendredi 12:30 – 14:00, à l'ENS

Déjeuner, cantine ENS

Vendredi 14:00 – 17:00, au LUG

Session de travail.

Titre et résumé des exposés

Pierre Aboulker

Configurations in digraphs with high dichromatic number

The dichromatic number of a digraph D is the minimum number of colors needed to color the vertices of D in such a way that there is no monochromatic cycle. We first give some easy properties related to the dichromatic number in order to show why it is a nice generalization of the chromatic number of non-oriented graphs. Then we investigate the following question: What can we say about subgraphs and induce subgraphs of a digraph with high dichromatic number?

Louis Esperet

Coloration de courbes dans le plan

On colorie des courbes du plan qui ne se croisent pas deux à deux. Quand chaque point du plan est contenu dans au plus k courbes, on essaie de colorier nos courbes (de manière propre) avec $O(k)$ couleurs. Dans le cas des courbes fermées, c'est lié au problème Feedback Vertex Set dans les graphes planaires dirigés. J'expliquerai le lien, et je parlerai aussi de systèmes de contacts de segments dans le plan (c'est lié à un résultat ancien de Patrice, notamment).

Travaux en commun avec D. Gonçalves, A. Labourel, W. Cames van Batenburg, et T. Müller.

Frédéric Havet

TBA

Rémi de Joannis de Verclos

TBA

William Lochet

On dipath in strong digraphs with large chromatic number

Recently, Cohen Havet Lochet and Nisse, showed that strong digraphs with large chromatic number contains two long internally disjoint directed paths between some pair of vertices. In this talk we will explain how we can generalise this result to more than two paths. Let $P(k, l; s)$ the digraph with three internally disjoint directed path between x and y , P_1 and P_2 from x to y of length respectively k and l and P_3 from y to x of length s . First we will show that $P(k, l; s)$ is the maximum we can ask for strong digraph, then we will show that strong digraphs with large chromatic number contain a subdivision of $P(k, 1, k)$.

Joint work with Nathann Cohen, Fred Havet and Raul Lopez.

Patrice Ossona de Mendez

Cluster Analysis of Local Convergent Sequences of Structures

The cluster analysis of very large objects is an important problem, which spans several theoretical as well as applied branches of mathematics and

computer science. Here we suggest a novel approach: under assumption of local convergence of a sequence of finite structures we derive an asymptotic clustering. This is achieved by a blend of analytic and geometric techniques, and particularly by a new interpretation of the representation theorem for limits of local convergent sequences, which serves as a guidance for the whole process. Our study may be seen as an effort to describe connectivity structure at the limit (without having a defined explicit limit structure) and to pull this connectivity structure back to the finite structures in the sequence in a continuous way.

Nicolas Trotignon

Truemper configuration

Truemper configurations are graphs that play an important role in many structural descriptions of classes of graphs. With Vušković and Radovanović, we started a project about studying what happens when a given combination of them is excluded. This leads to 16 classes of graphs, and the complexity of recognizing them was open for only one of them: (θ, wheel) -free graph. We just proved it is polynomial.

Participants extérieurs à Lyon

Pierre Aboulker
Julien Bensmail
Nicolas Bousquet
Louis Esperet
Frédéric Havet
Rémi de Joannis de Verclos
Aurélie Lagoutte
William Lochet
Frédéric Maffray
Alantha Newman
Patrice Ossona de Mendez
Lucas Pastor
Jean-Sébastien Sereni
Ana Shirley Silva
Matej Stehlik