GRAPHSDAY – ULB – 3TH OF OKTOBER 2013 –

PROGRAM:

9:00 **Arriving – coffee and inscription for the lunch – ULB campus Solbosch – Square groupe G, porteA 4ème niveau – Service de mathématiques.**
See map: **http://www.ulb.ac.be/campus/solbosch/plan.html**

9:30 **Prof. HENDRICKS Julien (julien.hendrickx@uclouvain.be) Pole of Mathematical engineering (INMA) in Institute of Information and Communication Technologies, Electronics and Applied Mathematics (ICTEAM) – UCL (Université Catholique de Louvain)**

Views in a graph: to which depth must equality be checked?

Abstract

The view of depth k of a node is a tree containing all the walks of length k leaving that node. Views contain all the information that nodes could obtain by exchanging messages with their neighbors. In particular, a value can be computed by a node on a network using a distributed deterministic algorithm if and only if that value only depends on the node's view of the network. Norris has proved that if two nodes have the same view of depth n-1, they have the same views for all depths. Taking the diameter d into account, we prove a new bound in O(d+d\log(n/d)) instead of n-1 for bidirectional graphs with port numbering, which are natural models in distributed computation.
This automatically improves various results relying on Norris's bound. We also provide a bound that is stronger for certain colored graphs, and finish by an open question.

10:00 **Dr. Premek Holub** – Department of Mathematics, University of West Bohemia, Pilsen, Czech Republic

The Packing colouring of graphs

Abstract

The concept of packing colouring comes from the area of frequency planning in wireless networks. This model emphasizes the fact that some frequencies have higher throughput and hence they are used more sparely to avoid an interference. The packing chromatic number (p.c.n.) of a graph G is the smallest integer k such that the vertex set of G can be partitioned into disjoint classes X_i where vertices in X_i have pairwise distance greater than i. In this talk we present several upper and lower bounds on p.c.n. for grids, some Cartesian products of graphs and for distance graphs.

10:30 **Time out – coffee break**

11:00 **Dr. Nicolas Van Cleemput : (Nicolas.VanCleemput@UGent.be) Applied Mathematics, Computer Science and Statistics – Ghent University**

Hamiltonian cycles in triangulations

Abstract

In 1931 Whitney showed that any triangulation without a separating triangle, i.e., a non-facial 3-cycle, is hamiltonian. It took 71 years to improve on this result, but the improvement was vast. In 2002 Jackson and Yu defined a decomposition tree for triangulations which was based on separating triangles. They showed that a triangulation is hamiltonian if the maximum degree of that tree is at most 3. This not only meant that all triangulation with at most 4 separating triangles are hamiltonian, but also that many triangulations with more than 4 separating triangles are hamiltonian, as long as these triangles are in certain relative position within the triangulation. In this talk we will show theoretical and computational result of the investigation of which trees might arise as decomposition trees of non-hamiltonian triangulations.

11 :30 **Prof. QUISQUATER Jean-Jacques (jjq@uclouvain.be) Prof. Emeritus – member of the Crypto Group of UCL (Université Catholique de Louvain)**

Rubik's for (crypto)graphs

Exposé basé sur l'article: Christophe Petit and Jean-Jacques Quisquater – *Rubik's for Cryptographers* – Notices of the AMS – Volume 60, Number 6, june/July 2013 – pp.733-739

12 :00 Lunch time in a restaurant nearby.