Combinatorics Seminar

Friday June 21, 2013 at 2PM

Room MS.04

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Obstructions to intersection families of graphs

The intersection graph of a collection of sets is defined as the graph whose vertices correspond to the sets in the collection where two vertices are adjacent if and only if the corresponding sets intersect. Many popular graph classes are characterised as intersection graphs of particular types of sets, e.g. interval graphs, circular-arc graphs, chordal graphs are the intersection graphs of intervals of the real line, arcs of a circle, and subtrees of a tree, respectively. Another useful way of characterising graph classes is by obstructions – minimal forbidden subgraphs/minors/induced subgraphs – substructures whose presence certifies non-membership in the class, e.g. cycles of length four and more are obstructions for chordal graphs, while cycles of length 4, 5, and so-called asteroidal triples are obstructions for interval graphs.

For circular-arc graphs, only a partial list of obstructions is known and finding a complete characterisation is a notoriously challenging open problem dating back to as far as the 1970's. In this talk, we present a new type of obstructions to circular-arc graphs and show how it characterises certain subclasses of circular-arc graphs.

Joint work with Pavol Hell (SFU) and Mathew Francis (IMSc).

There will be refreshments for the attendees.
Please bring your own mugs (for coffee/tea) if possible.
Everyone is welcome.

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