Eric Mendelsohn: Colleagues and Descendants II
(Chair/Président: **Brett Stevens** (Carleton University)
Org: **Peter Danziger** (Ryerson University) and/et **Brett Stevens** (Carleton University))

ROBERT BAILEY, Ryerson University
Generalized packing designs with block size 5

In an earlier paper, Burgess and the speaker introduced the notion of generalized packing designs, and classified (with a few exceptions) those with block size 3 and 4. In this talk, we will discuss generalized packings with block size 5, where very quickly one arrives at some fascinating but challenging open problems: this includes questions about resolvable designs, orthogonal resolutions, generalized Howell designs and Latin rectangles.

This is joint work with Andrea Burgess and Peter Danziger.

DEREK CORNEIL, University of Toronto
Graph searches and cocomparability graphs

In this talk we study how graph searching on a cocomparability graph G can be used to produce cocomp orderings (i.e., orderings that are linear extensions of some transitive orientation of the edges of $\overline{G}$). In particular we present a characterization of the searches that preserve cocomp orderings when used as a "+" sweep. This allow us to build a toolbox of different graph searches and a framework to solve various problems on cocomparability graphs. In particular, we describe a very simple LexDFS based certifying algorithm for maximum independent set.

Joint work with J. Dusart, M. Habib and E. Koehler.

PETER DUKES, University of Victoria
Designs of high dimension

The dimension of a linear space is the maximum integer d such that any d points are contained in a proper subspace. Let's regard pairwise balanced designs as linear spaces and apply this definition. For instance, the Steiner triple system of order 81 associated with $\mathrm{AG}_4(3)$ (and the card game 'Set') has dimension 4. By contrast, most Steiner triple systems of a given order only have dimension 2.

I will observe in this talk that some standard design-theoretic constructions actually carry a complete asymptotic existence theory for pairwise balanced designs of any prescribed minimum dimension.

NABIL SHALABY, Memorial University
Skolem labelled graphs, old and new results

In 1991, (Discrete Mathematics, volume 97 301-317) Mendelsohn and Shalaby extended the concept of a Skolem sequence to assign the pairs of a Skolem sequence to the vertices of a graph so the distance between the vertices correspond to the position of the pairs in the sequence, for example, a 4-1-1-3-4-2-3-2 is a Skolem labelled path. Several results had accompanied the introduction of the new concept. We survey several results that were published since then. We also discuss some new results introduced by Pike, Sanaei and Shalaby, and discuss new directions and open questions.