Independence Number: Theory and Applications I.
(Chair/Président: **Craig Larson** (Virginia Commonwealth University)
Org: **Ermelinda DeLaVina** (University of Houston–Downtown) and/et **Craig Larson** (Virginia Commonwealth University))

ERMELINDA DELAVINA, University of Houston-Downtown
Graffiti.pc on Independence

Graffiti.pc is a graph theoretical conjecture-making program whose creation was inspired by the well-known program of Siemion Fajtlowicz, Graffiti. In addition to a brief description of the principles of the program we discuss Graffiti.pc's conjectured bounds on the independence number and other independence related graph invariants.

ART FINBOW, Saint Mary's University
On Well-Covered Planar Triangulations

A graph G is said to be *well-covered* if every maximal independent set of vertices has the same cardinality. A planar (simple) graph in which each face is a triangle is called a *triangulation*. A characterization of the planar well-covered triangulations has finally been completed. In a series of three previous papers, we have completed the 4- and 5-connected cases. This talk will focus on the 3-connected case.

This is joint work with B. L. Hartnell, R. Nowakowski and Michael D. Plummer.

MICHAEL D. PLUMMER, Vanderbilt University
A Problem On Well-covered Graphs

A graph is *well-covered* if every maxim*al* independent set of vertices is also maxim*um*. In other words, all maximal independent sets of vertices in the graph have the same cardinality.

I will present and discuss the recently solved problem of characterizing all well-covered quadrangulations of the plane.

This is joint work with Finbow and Hartnell.

WILLIAM STATON, University of Mississippi
Independence Polynomials of k-Trees

Explicit formulas are known for the independence polynomials of several classes of trees. We discuss extensions of some of these formulas to the corresponding classes of k-trees. Additionally, we generalize, to k-trees, Wingard's bounds for the coefficients of the independence polynomial of a tree.

DAVID TANKUS, Ariel University Center of Samaria, ISRAEL
Weighted Well-Covered Graphs without Cycles of Lengths 4, 5, and 6

A graph G is *well-covered* if all its maximal independent sets are of the same cardinality. Assume that a weight function w is defined on its vertices. Then G is *w-well-covered* if all maximal independent sets are of the same weight. For every graph G, the set of weight functions w such that G is w-well-covered is a *vector space*. Given an input graph G without cycles of length 4, 5, and 6, we characterize polynomially the vector space of weight functions w for which G is w-well-covered.

This is joint work with Vadim E. Levit.