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Affine planes, symmetry and 3 – e.c. graphs

A graph is 3 – e.c. if, for each triple S of vertices and for each $T \subseteq S$, there exists a vertex not in S which is adjacent to all vertices of T and to no vertices of $S \setminus T$. The structure and symmetry of an affine plane provide us with tools for constructing families of 3 – e.c. graphs on the point set of the plane and for determining when the resulting graphs are non-isomorphic.

This is joint work with Anthony Bonato (Wilfrid Laurier), Julia Brown (York) and Tamás Szőnyi (Eötvös University).