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2-Block-Intersection Graphs of Twofold Triple Systems

A twofold triple system (TTS) is a combinatorial design for which every block has exactly three points, and each pair of points occurs together in precisely two blocks. The 2-block-intersection graph (2-BIG) of a TTS is the graph having the blocks of the TTS as its vertices, and vertices are adjacent if their corresponding blocks have exactly two elements in common. We discuss several properties of the 2-BIGs of TTSs, including recent observations about planarity and vertex-transitivity.

Joint work with Benjamin Stanley.