
ALYSSA SANKEY, University of New Brunswick, Fredericton NB

Weighted strongly regular graphs associated with $S_4(q)$

We construct a family of weighted strongly regular graphs using the rank 3 action of the projective symplectic group on the totally isotropic lines of the symplectic geometry. From the weighted srg's we obtain line systems with two intersection angles, some of which realise known bounds on the number of such lines. There are also "type-II" matrices associated with these weighted srg's, thus they illustrate nicely the connections between weighted srg's, line systems with two angles, and type-II matrices.