

## On Construction of a Partial Geometry with Parameters

$$s = 6, t = 10, \text{ and } \alpha = 5$$

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The existence of this partial geometry implies the existence of a strongly regular graph with parameters  $n = 91$ ,  $k = 66$ ,  $\lambda = 45$ , and  $\mu = 55$ . It is known that this strongly regular graph is unique and has an automorphism group of size  $14!$ . The strongly regular graph gives the intersection patterns of pairs of rows in the geometry. To make the computations possible we assume that the partial geometry has an automorphism group. We have already shown that this geometry does not exist for automorphisms of orders  $p = 13$ ,  $p = 11$ , and  $p = 7$ . The backtrack search is in progress for  $p = 5$ . The existence of this geometry is related to the existence of ovals in a projective plane of order 12.

This is a joint work with Dr. Clement Lam.