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Anthony B Evans* (anthony.evans@wright.edu), Department of Mathematics and Statistics, Wright State University, 3640 Colonel Glenn Highway, Dayton, OH 45435. *Mutually orthogonal latin squares based on groups*. Preliminary report.

Given the multiplication table of a finite group, we can construct sets of mutually orthogonal latin squares (MOLS), by permuting its columns. A natural question: how large a set of MOLS can we construct in this way?

The existence of a pair of MOLS based on a group is completely determined by the structure of the group's Sylow-2 subgroup. But, beyond this, very little is known for most classes of groups. We will study possible ways to improve on lower bounds for the largest number of squares possible in sets of MOLS based on groups. (Received December 04, 2008)