

1116-05-1928 **Peter J Dukes*** (dukes@uvic.ca). *Designs and dimension*.

This talk examines dimension in the context of finite geometry and pairwise balanced designs. Specifically, the dimension of a design is the maximum integer d such that any set of d points is contained in a proper subdesign.

We consider in detail the particular case of dimension three where lines have sizes 3, 4 or 5. Results in this case come from collaboration with two students: Joanna Niezen's Master's thesis settles the existence of such designs for all orders (apart from a few small exceptions and unknown values) and Nick Benson's USRA work obtains constructions for all orders with a universal bound (94) on the size of three-point-generated subdesigns. This leads to a construction of latin squares "covered" by bounded subsquares. (Received September 21, 2015)