

A new approach to finite semifields

Michel Lavrauw

September 28 2005

Joint work with S. Ball and G. Ebert

A finite semifield is shown to be equivalent to the existence of a particular geometric configuration of subspaces with respect to a Desarguesian spread in a finite dimensional vector space over a finite field. In 1965 Knuth showed that each finite semifield generates in total six (not necessarily isotopic) semifields. In certain cases, the geometric interpretation that will be given in this talk allows us to construct another six semifields, hence, in total twelve (not necessarily isotopic) semifields are obtained from a given finite semifield.