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*Highly nonlinear functions in terms of codes, graphs, and designs*

As well as having a number of applications in cryptography, some highly nonlinear functions over finite fields can be used to produce interesting graphs and error-correcting codes. In this talk we show that crooked functions can be characterized by both the distance of a Preparata-like code and the distance-regularity of a crooked graph. We then introduce another application for nonlinear functions, namely spherical designs, and show that differentially 1-uniform functions over abelian groups can be characterized by weighted complex 2-designs.