Linear Codes Associated to Grassmann and Schubert Varieties

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Abstract: We will give a brief introduction to the construction of linear codes from projective algebraic varieties defined over finite fields. We consider the Grassmannian over a finite field as the first example and discuss the Grassmann code (linear code associated to the Grassmannian) in detail. Several known results for these codes will be discussed and we will also try to indicate some open problems related to these codes. Our second example will be the linear code associated to a Schubert variety in a Grassmanniann. This is known as the Schubert code. We will review some of the known results on the parameters of Schubert codes. In the end, we will outline some recent development in the direction of computing the weight spectrum of Schubert codes.

Parts of this talk are based on a joint work with Sudhir Ghorpade and also on a joint work with Fernando Piñero..