ODTU-Bilkent Algebraic Geometry

Linear Codes on Subgroups of Weighted Projective Tori

By

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Abstract: Toric varieties are interesting geometric objects lying on the crossroad of algebra, geometry and combinatorics containing a dense torus which is an algebraic group acting on the toric variety. Many champion codes obtained from toric varieties appeared in the literature.

The simplest examples of toric varieties include classical and weighted projective spaces. Parameters of linear codes obtained by evaluating rational functions on a projective torus are computed in 2011 by Sarmiento, Vaz Pinto and Villarreal. This idea is transferred to weighted projective tori and some parameters are computed in 2015 by Dias and Neves.

The purpose of this talk is to introduce some linear codes on toric varieties. We focus on codes obtained from certain subgroups of the weighted projective torus over a finite field, and to share some formulas for their parameters in some cases. We restrict to two dimensional case to obtain more explicit formula for the minimum distance of the code on the weighted projective torus T(1,1,a) over F_q.

This is a joint work with Oğuz Yayla of METU.

Date: 8 October 2021, Friday
Time: 15:40 (GMT+3)
Place: Zoom

To request the event link, please send a message to sertoz@bilkent.edu.tr