ODTU-Bilkent Algebraic Geometry

Curves over finite fields and error correcting codes

By

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Abstract: Historically, questions about rational points on curves over finite fields occupy a prominent place in number theory. The introduction of the zeta functions for these curves by Artin led to an increased interest in this field, which culminated in the proof of the corresponding Riemann hypothesis by Hasse and Weil in the first half of the 20th century. After a long period, interest in this field was again reawakened in the 80's, when Goppa showed how this machinery from algebraic geometry can be used in the constructions of long codes allowing reliable communication over channels in the presence of errors. Using algebraic curves it became possible to beat the best constructions known to coding theorists and in the following decades many other applications in coding theory and cryptography followed. In this talk I will talk about recent results on the number of rational points on curves of large genus and their applications in the theory of error correcting codes.

Date: 22 October 2021, Friday
Time: 15:40 (GMT+3)
Place: Zoom

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