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The Hong Kong University of Science and Technology

Department of Mathematics

Seminar on Pure Mathematics

**An Improvement on Hasse-Weil Bound and
Applications**

by

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Abstract

The Hasse-Weil bound is a deep result in mathematics and has found wide applications in mathematics, theoretical computer science, information theory etc. In general, the bound is tight and cannot be improved. However, for some special families of curves the bound could be improved substantially. In this talk, we focus on the Hasse-Weil bound for the curve defined by $y^2+y=f(x)$ over the finite field F_q of characteristic 2.

We show that the Hasse-Weil bound for this special family of curves can be improved if $q=2^n$ with odd $n>2$ which is the same case where Serre improved the Hasse-Weil bound. However, our improvement is greater than Serre's improvement for this special family of curves.

Date: Tuesday, 30 July 2019

Time: 3:00p.m. - 4:00p.m.

**Venue: Room 4472, Academic Building
(near Lifts 25-26), HKUST**

All are welcome!