

Speaker: Harun Kir

Title: The refined Humbert invariant for a given automorphism group of a genus 2 curve with some applications

Abstract. E. Kani recently showed that the automorphism group $\text{Aut}(C)$ of a genus 2 curve C can be determined from its associated *refined Humbert invariant* q_C , which is a positive definite quadratic form. In this talk, for a given automorphism group of a genus 2 curve C , where J_C is a product of two isogenous CM elliptic curves E_1 and E_2 , we will list all possible quadratic forms q_C in the form of Eisenstein-reduced integral ternary quadratic form. For this purpose, we will classify ternary integral quadratic forms according to their automorphism groups.

As an application of our list, we will mention new results on the intersection of Humbert surfaces. We will also illustrate how these results reprove some interesting known results of T. Shaska, and what they say for the extension of Shaska's results.