Speaker: Ye Tian

Title: Converse to a theorem of Gross-Zagier and Kolyvagin-Rubin: CM case

Abstract: Let \( E \) be an elliptic curve over the rationals and \( p \) a prime. The converse in the title refers to the assertion that

“If the \( \mathbb{Z}_p \)-corank of the \( p \)-Selmer group of \( E \) is one then the vanishing order of its complex \( L \)-function at the center is also one.”

We prove the converse in the CM case under a certain assumption.

This is a joint work with Ashay Burungale.