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Functional equation for multi-signed Selmer groups

Let E be an elliptic curve defined over \mathbb{Q} with supersingular reduction at a prime p . One problem to study the Iwasawa theory of E along the \mathbb{Z}_p -cyclotomic extension is the non co-torsionness of the Selmer group of E . This issue was resolved by Kobayashi by defining the plus/minus Selmer groups. The main conjecture that relate these Selmer groups to Pollack's plus/minus p -adic L-function on the analytic side, has recently been proved (Kato-Kobayashi-Wan). This implies a functional equation for the plus/minus Selmer groups, which had been independently proved by B.D. Kim. A. Lei and K. Büyükboduk have showed that the definition of plus/minus Selmer groups can be generalized to abelian varieties by . In this talk, we shall show that using techniques of Kim, these new Selmer groups satisfy a functional equation as in the case of elliptic curves.