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## **Yukako KEZUKA . On the conjecture of Birch and Swinnerton-Dyer for certain elliptic curves with complex multiplication.**

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Abstract: This talk will describe recent joint work in progress with J. Coates, Y. Li and Y. Tian. Let  $K$  be the imaginary quadratic field  $\mathbb{Q}(\sqrt{-q})$ , where  $q$  is any prime congruent to 7 modulo 16. Let  $A$  be the Gross curve defined over the Hilbert class field  $H$  of  $K$ , with complex multiplication by the ring of integers of  $K$ . In their most recent work, Coates and Li found a large family of quadratic twists  $E$  of  $A$  whose complex  $L$ -series  $L(E/H, s)$  does not vanish at  $s=1$ . We will discuss the  $p$ -part of the Birch and Swinnerton-Dyer conjecture for these curves for every prime  $p$  which splits in  $K$  (in particular, this includes  $p=2$ ).