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**Gang Yu\*** ([gangyu@math.lsa.umich.edu](mailto:gangyu@math.lsa.umich.edu)), Department of Mathematics, University of Michigan, 525 S. University Ave., Ann Arbor, MI 48109-1109. *Average order of the Selmer groups of certain families of elliptic curves.* Preliminary report.

For an elliptic curve given by the equation

$$E : y^2 = x(x^2 + ax + b)$$

where  $a, b \in \mathbb{Z}$  and  $a^2 - 4b$  is not a square, we denote by  $E'$  the rational 2-isogenous curve given by the equation

$$E' : y^2 = x(x^2 - 2ax + a^2 - 4b).$$

By  $S^{(\phi)}(E/\mathbb{Q})$  we denote the Selmer group related to the rational 2-isogeny  $\phi : E \rightarrow E'$ . We show that, as  $E$  runs over the quadratic twists of some special curve in a certain arithmetic progression, the average order of  $S^{(\phi)}(E/\mathbb{Q})$  is bounded, which, along with the similar upper bound for the average order of the Selmer groups related to the dual isogeny, simply implies that the average rank of the quadratic twists is bounded. (Received October 01, 2000)