

Orders of Tate-Shafarevich groups in families of elliptic curves

Andrzej DĄBROWSKI
University of Szczecin

We present the results of our search for the orders of Tate-Shafarevich groups for three types of families of elliptic curves:

- (i) the quadratic twists of a fixed elliptic curve [DJS] [DS2],
- (ii) the family of elliptic curves of Neumann-Setzer type [DS1],
- (iii) the cubic twists [DS3].

This is a joint work with L. Szymaszekiewicz.

[DJS] A. Dąbrowski, T. Jędrzejak, L. Szymaszekiewicz, *Behaviour of the order of Tate-Shafarevich groups for the quadratic twists of $X_0(49)$* . In: *Elliptic Curves, Modular Forms and Iwasawa Theory* (in honour of John H. Coates'70th birthday). Springer Proceedings in Mathematics and Statistics **188** (2016), 125-159

[DS1] A. Dąbrowski, L. Szymaszekiewicz, *Orders of Tate-Shafarevich groups for the Neumann-Setzer type elliptic curves*, Mathematics of Computation (in press)

[DS2] A. Dąbrowski, L. Szymaszekiewicz, *Behaviour of the order of Tate-Shafarevich groups for the quadratic twists of elliptic curves*, arXiv:1611.07840v1[math.NT]

[DS3] A. Dąbrowski, L. Szymaszekiewicz, article in preparation