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Stephanie Chan* (stephanie.chan.16@ucl.ac.uk), Department of Mathematics, University College London, Gower Street, London, WC1E 6BT, United Kingdom. *Ranks, 2-Selmer groups, and Tamagawa numbers of elliptic curves with $\mathbb{Z}/2\mathbb{Z} \times \mathbb{Z}/8\mathbb{Z}$ -torsion.*

In 2016, Balakrishnan–Ho–Kaplan–Spicer–Stein–Weigandt produced a database of elliptic curves over \mathbb{Q} ordered by height in which they computed the rank, the size of the 2-Selmer group, and other arithmetic invariants. They observed that after a certain point, the average rank seemed to decrease as the height increased. Here we consider the family of elliptic curves over \mathbb{Q} whose rational torsion subgroup is isomorphic to $\mathbb{Z}/2\mathbb{Z} \times \mathbb{Z}/8\mathbb{Z}$. Conditional on GRH and BSD, we compute the rank of 92% of the 202,461 curves with parameter height less than 10^3 . We also compute the size of the 2-Selmer group and the Tamagawa product, and prove that their averages tend to infinity for this family. This talk is on joint work with Jeroen Hanselman and Wanlin Li. (Received September 24, 2018)