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Zev Klagsbrun, Barry Mazur and Karl Rubin* (krubin@math.uci.edu). *Ranks of elliptic curves in families of quadratic twists.*

I will discuss some recent results on the distribution of 2-Selmer ranks in families of quadratic twists of elliptic curves over arbitrary number fields. We study the density of twists with a given 2-Selmer rank, and obtain some surprising results on the fraction of twists with 2-Selmer rank of given parity. Since the 2-Selmer rank is an upper bound for the Mordell-Weil rank, this work has consequences for Mordell-Weil ranks in families of quadratic twists. (Received December 01, 2011)