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Pete L. Clark*, plclark@gmail.com. *Asymptotics of torsion on elliptic curves over number fields.*

I will survey recent work – joint with Bourdon, Milosevic, Pollack and Stankewicz – on the torsion subgroup of an elliptic curve defined over a number field. Emphasis will be placed on asymptotic results: especially, what can be said about the maximum size of the function $T(d)$ of the torsion subgroup of an elliptic curve over a degree d number field? Much more can be said by restricting the class of elliptic curves, and I will consider two different restricted regimes: $T_{\text{CM}}(d)$ restricts to elliptic curves with complex multiplication and $T_k(d)$ restricts to elliptic curves with j -invariant lying in a fixed number field k . These results can be viewed as giving information on closed points of small degree on the modular curves $X(M, N)$, and I will explore this perspective as well. (Received January 24, 2019)