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Anastassia Etropolski* (aetropo@emory.edu), **David Zureick-Brown** and **Jackson Morrow**. *Sporadic Torsion on Elliptic Curves*.

In Mazur's celebrated 1978 Inventiones paper, he classifies the torsion subgroups which can occur in the Mordell-Weil group of an elliptic curve over \mathbf{Q} . His result was extended to elliptic curves over quadratic number fields by Kamienny, Kenku, and Momose, with the full classification being completed in 1992. What both of these cases have in common is that each subgroup in the classification occurs for infinitely many elliptic curves, but this no longer holds for cubic number fields. In 2012, Najman showed that there exists an elliptic curve whose torsion subgroup over a particular cubic field is $\mathbf{Z}/21$. This was the first "sporadic" example, because the modular curve $X_1(21)$ classifying such elliptic curves has only finitely many cubic points, therefore there can only be finitely many such curves. In this talk, we will recall what is known so far and introduce new results about sporadic points on the modular curves $X_1(N)$ and $X_1(M, N)$. (Received January 19, 2016)