

Robert J.S. McDonald – Publications

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1. **Torsion Subgroups of Elliptic Curves over Function Fields of Genus 0** (2017)
in [Journal of Number Theory Volume 193](#)
preprint available at <https://mathrjsm.com/#research>

Abstract: *Let $K = \mathbb{F}_q(T)$ be the function field of a finite field of characteristic p , and E/K be an elliptic curve. It is known that $E(K)$ is a finitely generated abelian group, and that for a given p , there is a finite, effectively calculable, list of possible torsion subgroups which can appear. For $p \neq 2, 3$, a minimal list of prime-to- p torsion subgroups has been determined by Cox and Parry. In this article, we extend this result to the case when $p = 2, 3$, and determine the complete list of possible full torsion subgroups which can appear, and appear infinitely often, for a given p .*

2. **Torsion Subgroups of Elliptic Curves over Function Fields of Genus 1**
(2019, submitted)
for a current (rough) draft, see <https://mathrjsm.com/#research>

Abstract: *Let $k = \mathbb{F}_q$ be a finite field of characteristic p , and \mathcal{C} be a smooth, projective, absolutely irreducible curve of genus one over k . Let $K = k(\mathcal{C})$, and E be a non-isotrivial elliptic curve over K . Then, $E(K)$ is a finitely generated abelian group, and there is a finite list of possible torsion subgroups which can appear that depends only on \mathcal{C} and p . In this article, we build on previous work to determine a complete list of possible full torsion subgroups which can appear over K .*