## Robert JS McDonald | Publications

## 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 C be a smooth, projective, absolutely irreducible curve of genus one over k. Let K = k(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 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.