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*Distribution of the  $p$ -Torsion of Jacobian Groups of Regular Matroids*

Given a regular matroid  $M$  on  $E$  and a map  $\lambda: E \rightarrow \mathbb{N}$ , we can construct a regular matroid  $M_\lambda$ . In this talk, we discuss the distribution of the  $p$ -torsion of the Jacobian groups of the family  $\{M_\lambda\}_{\lambda \in \mathbb{N}^E}$ . We show that those Jacobian groups with nontrivial  $p$ -torsion can be parametrized by the  $\mathbb{F}_p$ -rational points of the configuration hypersurface associated to  $M$ . In this way, we reduce the problem to counting points over finite fields. As a result, we obtain a closed formula for the proportion of these groups. In addition, we show that the Jacobian groups with nontrivial  $p$ -torsion appear with frequency close to  $1/p$ , provided  $M$  is irreducible.