POSTER PRESENTATION

(1) **Arijit Chakraborty (University of California, San Diego)**
A Power-Saving Error Term in Counting $C2 \wr H$ Number Fields
One of the central problems in Arithmetic Statistics is counting number field extensions of a fixed degree with a given Galois group, parameterized by discriminants. We will focus on $C2 \wr H$ extensions over an arbitrary base field. While Jürgen Klüners has established the main term in this setting, we present an alternative approach that provides improved power-saving error terms for the counting function.

(2) **Elia Gorokhovsky and August Liu (Harvard University)**
4-Rank Distribution of Picard Groups of Hyperelliptic Curves via C-Symmetric Matrices
We determine the large-genus limiting distribution of the 4-rank of the Picard group of hyperelliptic curves over a fixed finite field $\mathbb{F}_q$ of odd characteristic. This is a function field analogue of a result of Fouvry and Klüners. Our computation agrees with (the Picard group analogue of) the Cohen-Lenstra-Gerth heuristics in the case $q \equiv 3 \pmod 4$, i.e., in the absence of roots of unity in the base field. When roots of unity are present, the result is of the same form as conjectured distribution for class groups of quadratic extensions of number fields containing roots of unity. In the process, we determine the rank distribution of a certain class of random matrix ensembles over finite fields determined by symmetry conditions.

(3) **Hunter Handley (The Ohio State University)**
First-order definability of Darmon points in number fields
For a given number field K, we give a $\forall\exists\forall$-first order description of affine Darmon points over $\mathbb{P}^1_K$, and show that this can be improved to a $\forall\exists$-definition in a remarkable particular case. Darmon points, which are a geometric generalization of perfect powers, constitute a non-linear set-theoretical filtration between K and its ring of S-integers, the latter of which can be defined with universal formulas, as has been progressively proven by Koenigsmann, Park, and Eisenträger & Morrison. We also show that our formulas are uniform with respect to all possible S, with a parameter-free uniformity, and we compute the number of quantifiers and a bound for the degree of the defining polynomial. This is joint work with Juan Pablo De Rasis.

(4) **William Newman (The Ohio State University)**
Injective Quadratic Self-Maps on $\mathbb{P}^2$
In this poster, I describe a criterion for when a quadratic rational map $\mathbb{P}^2 \dashrightarrow \mathbb{P}^2$ defined over a field K is injective on K-rational points, along the way giving some partial results for $\mathbb{P}^n$. When K is a finite field, the criterion is very restrictive, and we are able to explicitly describe exactly which self-maps of $\mathbb{P}^2$ are injective (hence, bijective) on K-rational points. This is joint work with Michael Zieve.

(5) **Eiki Norizuki (University of Wisconsin, Madison)**
Proportion of Artin-Schreier curves with prescribed p-corank or a-number
This poster will talk about the proportion of Artin-Schreier curves with a given p-corank or a-number extending Sankar's earlier work on the proportion of ordinarity on Artin-Schreier curves. This will be related to some results about the moduli spaces of Artin-Schreier curves due to Pries and Zhu.