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On the distribution of a-numbers of hyperelliptic curves.

This talk will focus on various statistics regarding the distribution of class groups of quadratic fields in the function field setting. In particular, we present a new approach to counting the proportion of hyperelliptic curves of genus g defined over a finite field $\mathbb{F}_q$ with a given a-number. In characteristic three this method gives exact probabilities for curves of the form $y^2 = f(x)$ with $f(x) \in \mathbb{F}_q[x]$ monic and cubefree. These results are sufficient to show that a-numbers of hyperelliptic curves are not "distributed like random". Specifically, we compute the codimensions of the a-number strata of the moduli space of hyperelliptic curves and show that they differ from those of the full moduli space of abelian varieties.