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Title: *On the 2-Selmer group of Jacobians of hyperelliptic curves*

Abstract: Let C be a hyperelliptic curve $y^2 = p(x)$ defined over a number field K such that $p(x)$ has odd degree. The purpose of the present talk is to prove lower and upper bounds for the 2-Selmer group of the Jacobian of C in terms of the class group of the K -algebra $K[x]/(p(x))$. Our main result is a formula relating these two quantities under some mild hypothesis. We provide some examples that prove that our bound is as sharp as possible under our general hypothesis. If time allows, we will present some applications to the study of rank distribution in families.