RANK 2 VECTOR BUNDLES ON GENERIC CURVES AND MERCAT'S CONJECTURE

BENJAMIN BAKKER

ABSTRACT. The classical Brill–Noether theorem both gives an elegant classification of linear systems on generic curves and allows for the construction of interesting loci in M_g of curves admitting special linear systems. The problem of extending such a theory to higher rank vector bundles has been extensively studied but the picture is far from complete. In joint work with G. Farkas, we prove a conjecture of Mercat for rank 2 bundles on generic curves classifying minimal slope bundles that admit a prescribed number of sections. As in the classical case, the Brill-Noether theoretic behavior of rank 2 bundles can be packaged into a "rank two Clifford index"; the resulting stratification of M_g is different from the gonality stratification, but we nonetheless show that the divisorial strata in both cases have slope $6 + 12/(g + 1)$.