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*Non-vanishing for cubic $L$-functions*

Chowla conjectured that $L(1/2, \chi)$ never vanishes, for $\chi$ any Dirichlet character. Soundararajan showed that more than $87.5\%$ of the values $L(1/2, \chi_d)$, for $\chi_d$ a quadratic character, do not vanish. Much less is known about cubic characters. Baier and Young showed that more than $X^{6/7-\epsilon}$ of $L(1/2, \chi)$ are non-vanishing, for $\chi$ a primitive, cubic character of conductor of size up to $X$. I will talk about recent joint work with C. David and M. Lalin, where we show that a positive proportion of these central $L$-values are non-vanishing in the function field setting. This is achieved by computing the first mollified moment using techniques previously developed by the authors in their work on the first moment of cubic $L$–functions, and by obtaining a sharp upper bound for the second mollified moment, building on work of Soundararajan, Harper and Lester–Radziwill.