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Logarithmic Derivatives of Artin L-functions

Let K be a number field of degree n, and d_K be its discriminant. Then under the Artin conjecture, GRH and certain zero density hypothesis, we show that the upper and lower bound of the logarithmic derivative of Artin L-functions attached to K at $s = 1$ are $\log \log |d_K|$ and $-(n-1) \log \log |d_K|$, resp. Unconditionally we show that there are infinitely many number fields with the extreme logarithmic derivative values. They are families of number fields whose Galois closures have the Galois group as C_n, $2 \le n \le 6$, D_n, $n = 3, 4, 5$, S_4, and A_5. This is a joint work with Henry H. Kim.