

COLLOQUIUM

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ZEROS OF L-FUNCTIONS

[ABSTRACT]

In 20th century, one of the most striking discoveries in number theory is Montgomery's pair-correlation. It says that pair-correlation of zeros of the Riemann zeta function is the same with that of eigenvalues of unitary matrices. In 1990's, Rudnick, Katz and Sarnak studied the zeros of L-functions more systematically. Moreover, Katz and Sarnak proposed the n-level density conjecture which claims that distributions of low-lying zeros of L-functions in a family is predicted by one of compact matrix groups, which are $U(N)$, $SO(\text{even})$, $SO(\text{odd})$, $O(N)$, and $Sp(2N)$. At the end of the talk, I will state an n-level density theorem for some families of Artin L-functions and talk about counting number fields with local conditions. I will start with a friendly definition of L-functions and give some examples. No background or knowledge for L-functions are required for this talk.

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