

NON-VANISHING AT THE CENTRAL POINT OF THE DEDEKIND ZETA FUNCTIONS OF NON-GALOIS CUBIC FIELDS

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ABSTRACT: It is believed that for every S_n -number field, i.e. every degree n extension of the rationals whose normal closure has Galois group S_n , the Dedekind zeta function is non-vanishing at the central point. In the case $n = 2$ Soundararajan established, in spectacular work improving on earlier work of Jutila, the non-vanishing of the Dedekind zeta function for at least 87.5% of the fields in certain families of quadratic fields. In this talk, I will present recent joint work with Arul Shankar and Nicolas Templier, in which we study the case $n = 3$. In particular, I will discuss some of the main ideas in our proof that the Dedekind zeta functions of infinitely many S_3 -fields have non-vanishing central value.

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