

1145-11-45

**Robert D Hough\*** ([robert.hough@stonybrook.edu](mailto:robert.hough@stonybrook.edu)), Department of Mathematics, SUNY Stony Brook, 100 Nicolls Road, Stony Brook, NY 11794. *The shape of cubic and quartic number fields.*

Sato and Shintani defined  $\zeta$  functions enumerating integral orbits in prehomogeneous vector spaces. Recently I have introduced a twisted version of this construction, in which an automorphic form is evaluated at each orbit representative. Combined with work of Bhargava, Taniguchi-Thorne and Yukié this construction has applications to studying the lattice shape of the ring of integers of cubic and quartic number fields embedded in the canonical embedding. As part of this program, an exact formula for the Fourier transform of the indicator function of maximal quartic rings over  $\mathbb{Z}_p$  has also been obtained, extending earlier work of Taniguchi-Thorne in the cubic case. (Received June 29, 2018)