Publication List

Jonathan Hanke

Publications

On the cohomology of linear groups over imaginary quadratic fields,
(with H. Gangl, P.E. Gunnells, A. Schurmann, M.D. Sikirić, AND D. Yasaki)

Algorithms for computing maximal lattices in bilinear (and quadratic) spaces over number fields,

Enumerating maximal definite quadratic forms of bounded class number over \(\mathbb{Z}\) in \(n \geq 3\) variables,
(submitted to Jour. of London Math. Soc.)

Explicit formulas for masses of ternary quadratic lattices of varying determinant over number fields,
(submitted to Crelle)

The structure of masses of rank \(n\) quadratic lattices of varying determinant over number fields,
(submitted to Duke Math. J.)

Notes on "Quadratic Forms and Automorphic Forms" from 2009 Arizona Winter School,
(submitted to Arizona Winter School Conference Proceedings)

A proof of the S-genus identities, (with A. Berkovich and W. Jagy)
(submitted to Special Volume of the Ramanujan Journal)

Universal quadratic forms and the 290-theorem, (with M. Bhargava)
(accepted Invent. Math. in Sept. 2006)

An exact mass formula for quadratic forms over number fields,

Local densities and explicit bounds for representability by a quadratic form

Some recent results about (ternary) quadratic forms,

On a local-global principle for quadratic forms,

On an exact mass formula of Shimura, (with W.T. Gan and J. Yu),
An exact mass formula for quadratic forms over number fields,

Probabilistic and Stochastic approaches to constant-weighted portfolios in an antisymmetric two stock market with continuous time,
(in progress)

Average 2-torsion size in class groups of n-monogenic cubic fields, (with M. Bhargava and A. Shankar)
(in preparation)

Enumerating maximal definite quadratic lattices of bounded class number over number fields,
(in preparation)

Algorithms for computing a maximal lattice is quadratic spaces over number fields,
(in preparation)

Software

Quadratic Forms Library II for the SAGE computer algebra system,
http://trac.sagemath.org/sage_trac/ticket/12229
≈ 11,500 lines of Python Code

Quadratic Forms Library for the SAGE computer algebra system,
Tickets #4470, 5418, and 5954 at http://trac.sagemath.org/
 Released March 2009, distributed in SAGE versions ≥ 3.4,
≈ 22,000 lines of Python Code

Theta function Eigenform Decompositions in MAGMA,
http://code.google.com/p/theta-eigenform-decomposition--magma/
 Released June 2011
≈ 1,500 lines of MAGMA Code

Quadratic Forms Library in C++,
http://code.google.com/p/qflib/
≥ 20,000 lines of C++ Code

BinaryQF Graphics Routines in SAGE,
http://trac.sagemath.org/sage_trac/ticket/10867
≈ 300 lines of Python Code

ECLIB modifications to allow quadratic characters (joint with John Cremona),
http://code.google.com/p/eclib-with-quadchar/
(in progress)

Quadratic Forms Tables in SAGE,
(in preparation)