JONATHAN P. HANKE

`jonhanke@math.princeton.edu` `http://www.math.princeton.edu/~jonhanke`

Work Address:
Department of Mathematics
Princeton University
Fine Hall · Washington Road
Princeton, NJ 08544
(609) 258-6470 *(office)*
(609) 258-1367 *(fax)*

Home Address:
54-01 Fox Run Drive
Plainsboro, NJ 08536
(609) 275-4712

Employment

Instructor, Princeton University (2002–Present)

VIGRE Hill Assistant Professor, Rutgers University (1999–2002)

Education

Princeton University, Princeton, NJ.
Ph.D. in Mathematics, June, 1999. Dissertation under the supervision of Prof. Goro Shimura:
An exact mass formula for quadratic forms over number fields.

State University of New York at Stony Brook, Stony Brook, NY.
B.S. in Mathematics with Departmental Honors, June, 1995.

Research Interests

Number theory, Automorphic forms, Quadratic forms.

Publications

An extension of the 15-theorem, (with M. Bhargava), (in progress)

On a local-global principle for quadratic forms over number fields, (in progress)

Some factorizations of ring determinants, (in progress)

Some recent results about (ternary) quadratic forms, (submitted CNTA VII Proceedings)

On a local-global principle for integral quadratic forms, (submitted Compositio Math.)

Local densities and explicit bounds for representability by a quadratic form, (submitted Duke Math. J.)

On an exact mass formula of Shimura, (with W.T. Gan and J. Yu), Duke Math. J. **107** (2001), no. 1, 103–133.

An exact mass formula for quadratic forms over number fields, (submitted Crelle)

An exact mass formula for quadratic forms over number fields, Ph.D. Thesis.

Awards and Prizes

Alfred P. Sloan Dissertation Fellow (1998–1999)

National Science Foundation Graduate Fellow (1995–1998)

Stony Brook Foundation Award for Excellence in Mathematics (1995)
Presented to two graduating seniors demonstrating high academic achievement.

Member of ΣΠΣ Honor Society (1995)
National Physics Honor Society

Honors College Fellow at S.U.N.Y. at Stony Brook (1994)
A select interdisciplinary academic college for high-achieving students within the university.

Invited Talks

Duke University Algebraic Geometry Seminar, November 2002

Park City Math Institute, July 2002

Canadian Number Theory Association Meeting VII, May 2002

Princeton/IAS Number Theory Seminar, February 2001

Rutgers VIGRE Seminar, Fall 2000

Penn State Algebra Seminar, April 1999

Princeton University Algebra Seminar, December 1998

Teaching Experience

Instructor at Princeton University (2002 – Present)
Redesigned and Coordinated the Calculus I course with 10 sections and about 200 students (Fall 2002). This involved curriculum changes, creating numerous review problems and a course webpage, and teaching weekly review sessions in addition to one section of the course.

Instructor at Rutgers University (1999 – 2002)
Taught two semesters of calculus to about 25 students (Fall 1999 – Spring 2000).
Developed and taught a class in Cryptography to non-math majors (Fall 2000 – Fall 2001), including creation of a web page with lecture notes, homeworks, and other course resources.
Taught one semester of linear algebra to about 25 students (Spring 2002).

Working seminar on Jaquet-Langlands theory (Fall 2002)
Gave several lectures in an informal graduate student seminar describing some of the basics of Jaquet-Langlands theory.

Working seminar on Automorphic L-functions (Summer 2001)
Main speaker at a graduate student seminar for those interested in the spectral theory of automorphic forms contained in Bump's book "Automorphic forms and Representations".

Co-organized a working seminar on basic Algebraic Geometry (Fall 2000)
Main speaker at a graduate student seminar to assist those trying to learn algebraic geometry.

VIGRE rotation for graduate students (Fall 2000)
Designed and advised a reading course for two graduate students on p-adic numbers and their applications.

Rutgers Instructional Technology Summer Institute (Summer 2000)
Participated in an invited workshop on the use of computers and technology in teaching, sponsored by the Teaching Excellence Center.

Instructor at Princeton University (1998 – 1999)
Taught one section of first year calculus to freshman and sophomore undergraduates.

Participated in teaching seminar (1997 – 1998)
Teaching Seminar with Frank Morgan, Visiting Distinguished Teaching Professor.

Participated in HIS520 teaching seminar (Fall 1997)
A semester-long course on teaching with a focus on evaluation of personal strengths and weaknesses.

Teaching in Princeton Regional School District (Fall 1997, Fall 1998)
Elementary lectures on "Computing the Euler characteristic on Balloons".

Counselor at the PROMYS program – Boston University (Summers, 1992 – 1995)
An intense 6 week program in number theory for advanced high school students with a focus on self-discovery and learning to think independently about hard problems.

Other

Co-organized the Princeton Graduate Student Seminar (1996 – 1998)
A seminar where graduate students speak about their work and/or topics of interest.