

Keshav Aggarwal

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RESEARCH INTERESTS

Analytic Number Theory • Elliptic curves • Galois Theory • L -functions • Fourier analysis • Functional analysis • Representation theory of automorphic forms

My research lies at the cusp of algebra, analysis and application. FOURIER TRANSFORMATION is used for *signal processing* and *big data analysis*; ELLIPTIC CURVES are used in *cryptography* and *secure transmission* of information. Part of my research uses these tools, which makes my expertise range from abstraction to application.

RESEARCH EXPERIENCE

Selected Talks

Subconvexity bound problems & Circle method
International conference on Number theory
Kerala, India; Jan 2017.

Elliptic curves of large ranks
Talk in Research course: Computational Number theory, Ohio State University; Nov 2016.

Selected Works

THE BURGESS BOUND VIA A TRIVIAL DELTA METHOD
K. Aggarwal, R. Holowinsky, Y. Lin, Q. Sun; 2018

t -ASPECT SUBCONVEXITY BOUND FOR $GL(2)$
 L -FUNCTIONS
K. Aggarwal, S. K. Singh; 2017

THEORY OF ELLIPTIC CURVES
K. Aggarwal; 2013

Studied the theory of elliptic curves and wrote a program in Python to search for elliptic curves of large ranks by executing an algorithm of Penney and Pomerance (1974). Work is unpublished.

PROGRAMMING SKILLS

Intermediate	Python, C, C++, \LaTeX
Beginner	Mathematica

EDUCATION

2013 – PRESENT	PHD IN MATHEMATICS <i>Ohio State University</i>
2008 – 2013	DUAL BS-MS, MATHEMATICS <i>IISER Mohali, India</i>

TEACHING EXPERIENCE

Undergraduate courses

CALCULUS I - III • ENGINEERING MATHEMATICS
TA for multivariable differential and integral calculus, parametric curves, polar coordinates and Taylor series at Ohio State University.

Graduate courses

ALGEBRA GAP COURSE
Master's level algebra- groups, rings, modules, fields, vector spaces and Galois theory taught to incoming PhD student at Ohio State University.

TA TRAINING

Guided series of lectures, presentations and workshops for incoming Masters and PhD students at Ohio State University to prepare them for classroom teaching.

LEADERSHIP ROLES

CO-FOUNDED AND DIRECTED non-profit organization YOUTHS' ATTEMPT TO NURTURE at IISER Mohali in 2010. Managed and wrote its blog from 2010-13: yatniiserm.blogspot.com Worked with issues of MIGRANT LABORERS, organized SUNDAY ACTIVITIES for kids of AGE 3- 16, organized six FUND RAISERS, sent more than 50 KIDS TO SCHOOL in 3 years. Organization had about 45 active student members and 10 faculty members by 2013.

SERVICE

2016-17	STUDENT REPRESENTATIVE <i>Graduate Studies Committee, Dept. of Mathematics, Ohio State University</i>
2014-17	MEMBER <i>Sankalpa India, Ohio State University</i>

ACHIEVEMENTS

2015	PHIL HUNEKE EXCELLENCE IN TEACHING AWARD FOR 2014-15 Department of Mathematics, Ohio State University, Columbus
2013	PRESIDENT'S GOLD MEDAL FOR ACADEMIC EXCELLENCE IISER Mohali, India
2006-2013	KISHOR VAIGYANIC PROTSAHAN YOJANA (KVPY) SCHOLARSHIP Dept. of Science and Technology, Govt. of India