

University of Florida • Mathematics Department
The 2016 Gainesville International Number Theory Conference[†]
in honor of Professor Krishnaswami Alladi for his 60-th birthday

OPENING LECTURE

by

Professor Manjul Bhargava*

Princeton University

on

Squarefree Values of Polynomial Discriminants

Date and Time: 8:25 - 9:20am, Thursday, March 17, 2016

Location: The Straughn Center

OPENING REMARKS

by

CLAS Associate Dean Ata Sarajedini



Abstract: The question as to whether a positive proportion of monic integer polynomials of degree n have squarefree discriminant is an old one; an exact formula for the density was conjectured by Lenstra. (The interest in polynomials f with squarefree discriminant comes from the fact that in such cases it is immediate to construct the ring of integers in the \mathbb{Q} -algebra $\mathbb{Q}[x]/f(x)$.)

In this talk, we will describe recent work with Arul Shankar and Xiaoheng Wang that allows us to determine the probability that a random monic integer polynomial has squarefree discriminant - thus proving the conjecture of Lenstra.

* ABOUT THE SPEAKER: Manjul Bhargava is Brandon Fradd Professor of Mathematics Number Theory at Princeton University. and Stieltjes Professor of Number Theory at Leiden University. He has had a glorious mathematical career since his high school days. In his PhD thesis written under the direction of Andrew Wiles at Princeton, he established composition laws for forms of degree > 2 , thereby breaking a 200 year impasse, and extending Gauss' composition law for quadratic forms. For his PhD and post-doctoral work on quadratic and higher degree forms, he was awarded the Hasse Prize in 2003, the SASTRA Ramanujan Prize, the AMS Blumenthal Prize, and the CLAY Research Award all in 2005, and the Cole Prize of the AMS in 2008. When appointed Full Professor at Princeton at the age of 28, he was the youngest ever at that rank. Subsequently, he went on to establish path-breaking results on ranks of elliptic curves. For this he was awarded the Fields Medal in 2014. He is one of the greatest mathematicians of our generation.

[†] CONFERENCE URL: www.qseries.org/alladi60