IIT(ISM)
DHANBAD

DECEMBER
22

Srinivasa Ramanujan

On the occasion of

National Mathematics Day

Department of Mathematics & Computing
organizing experts talk by

Prof. M.S. Raghunathan

(Centre For Basic Sciences)
Title :
Mathematics - Art that would rather be Science
(Public Talk)

Prof. Sudhir R. Ghorpade

(IIT Bombay)
Title: Historical Development of the Theory of Equations and beginnings of Modern Algebra

Prof. Nitin Saxena

(IIT Kanpur)
Title: Prime Numbers and Circuits

ZOOM Meeting link: https://us06web.zoom.us/j/89870555326?pwd=WTVMQVhLUnI2SjIjSXREeWgzNDdHZz09
Meeting ID 898 7055 5326 Passcode: 083167,
YouTube live link: https://www.youtube.com/watch?v=JRSJIaIMCj4

About the Institute

Indian Institute of Technology (Indian School of Mines) Dhanbad is one of the most reputed technological institutions of national importance. Since its inception in 1926, the institute has had a unitary character and a pan-India flavor. The Institute has 18 academic departments offering a wide range of courses in Engineering, Science, Management, Humanities and Social Sciences at UG and PG levels, besides having an intensive PhD programme. The institute has forged strong global linkages with institutions of repute and its resource base has undergone a phenomenal change with new and updated facilities, research laboratories, digital library and an ultra modern sophisticated central research facilities. You may visit the website at: www.iitism.ac.in for more information.

About the Department of Mathematics & Computing

Department of Mathematics was established since the inception of Indian School of Mines in 1926 and was given an independent status in 1989 as Department of Applied Mathematics and further renamed as Mathematics & Computing. The Department provides an outstanding research environment complemented by excellent teaching for its students to flourish in different arena of academics and industry as well. The department offers academic programs leading to the award of M. Sc. (Mathematics and Computing), Integrated M. Tech. (Mathematics and Computing), and Ph. D. degree. The Department is well equipped with highly qualified faculty members and supportive advanced computational labs. Apart from this, department taking care of Mathematical input to all undergraduate and post graduate courses of Engineering and Science currently running in IIT(ISM) Dhanbad.

About Speakers

Prof. M. S. Raghunathan: He is a Distinguished Professor at the Center For Excellence in Basic Sciences, Mumbai. He is currently Chairman of the National Centre for Mathematics, a joint center of TIFR and IIT Bombay. He is a recipient of the civilian honor of Padma Bhushan (third-highest civilian award in India) and Padma Shri. In 2000, Prof. Raghunathan was inducted as a fellow of the Royal Society. Besides, he is a fellow of several prestigious scientific societies and academies, like the Third World Academy of Sciences, American Mathematical Society, Indian Academy of Sciences, and many others. In 1977, he was awarded the Shanti Swarup Bhatnagar Award, the highest scientific award in India. In 1991, he received the Srinivasa Ramanujan Medal, presented by the Indian National Science Academy.

Prof. Sudhir R. Ghorpade: He is a Professor at the Department of Mathematics, IIT Bombay. He received a Ph.D. degree in Mathematics from Purdue University. His research interests include algebraic geometry, coding theory, combinatorics, and commutative algebra. He is a Fellow of the National Academy of Sciences, India since October 2010 and is on the editorial board of the IEEE Transactions on Information Theory.

Prof. Nitin Saxena: He is a Professor at the Department of Computer Science, IIT Kanpur. His research interests include Computational Complexity Theory, Algebra, Geometry, and Number Theory. He with Manindra Agrawal and Neeraj Kayal proposed a path-breaking AKS Primality Test in 2002, for which they won the 2006 Fulkerson Prize, and the 2006 Gödel Prize. They provided the first unconditional deterministic algorithm to test an n-digit number for primality in a polynomial time in n. He was awarded the 2018 Shanti Swarup Bhatnagar Prize for his work in Algebraic Complexity Theory.

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Schedule

10:00-10:30 AM	Inaugural Session
10:30-11:30 AM	Public Talk Prof. M. S. Raghunathan
12:00 AM-13:30 PM	Invited Talk 1 Prof. Sudhir R. Ghorpade
16:00-17:00 PM	Invited Talk 2 Prof. Nitin Saxena

Program Schedule	
https://us06web.zoom.us/j/89870555326?pwd=WTVMQVhLUnI2SjljSXREeWgzNDdHZz09	
https://www.youtube.com/watch?v=JRSJIaIMCj4	
December 22, 2021 (Wednesday)	
10:00-10:30 AM	**Inaugural Session**
Session 1	**Public Talk**
10:30-11:30 AM	Speaker: Prof. M. S. Raghunathan Title: Mathematics - Art that would rather be Science. Abstract: Mathematics is regarded as a Science. Deductive reasoning is the common thread of all sciences; and that underlies this perception. The level of rigour demanded by mathematics in this, however sets it somewhat apart from other sciences. And this is what is perhaps responsible for the popular idea of mathematics as a forbidding discipline. But there is an aspect of mathematics which is seldom recognized by people who are not professional mathematicians: a lot of mathematics is born of a (successful) quest for the beautiful. In this and in many other ways mathematics resembles art and there is in fact a strong case for mathematics to be considered art. In this talk I will expand on this theme with some historical illustrations.
Tea Break	
Session 2	**Invited Talk 1**
12:00-13:30 PM	Speaker: Prof. Sudhir R. Ghorpade Title: Historical Development of the Theory of Equations and beginnings of Modern Algebra. Abstract: Beginning with the familiar and rather ancient formula for the roots of a quadratic equation and the related notion of the discriminant of a quadratic polynomial, I will trace the development of some of the major ideas in the theory of equations. This will be laced with some amusing stories, mainly from the medieval and renaissance period, of some remarkable persons and events that played a major role in the development of the subject. Along the way, we will try to answer the kind of basic questions which smart high-school or undergraduate students of mathematics are likely to ask themselves or their teachers, but often in vain; for example, is there a formula for the roots of a cubic equation, a quartic equation, and in general, an equation of any degree? What is (or what should be) the discriminant of a general polynomial of any degree? We will also see how these questions led to some of the modern aspects of algebra.
Lunch Break	
Session 3	**Invited Talk 2**
16:00-17:00 PM	Speaker: Prof. Nitin Saxena Title: Prime Numbers and Circuits.