



Advanced Training in Mathematics Schools

Supported by *National Board for Higher Mathematics*

Advanced Instructional School on Computational Commutative Algebra

Venue: *IIT Guwahati, Assam*

17th Dec., 2010 - 4th Jan., 2011

Conveners: Ravi Rao , Rabeya Basu & Vinay Wagh

A Brief Description of ATM Schools

Advanced Training in Mathematics (ATM) Schools are a joint effort of a large number of mathematicians in the country for training mathematics research scholars and teachers with generous support from the National Board for Higher Mathematics. The programmes are conducted in reputed mathematics departments in Summer and Winter each year. In these Schools, the emphasis is on problems solving and on understanding inter-relations of basic subjects in mathematics. At the initial stage, ATM Schools consist of two Annual Foundation Schools (AFS I & II) in algebra, analysis, and topology. At a later stage, Advanced Instructional Schools (AIS) and workshops (ATMW) in all major areas are organised. Several advanced instructional schools (ATML) are organized each year exclusively for young lecturers in colleges and universities

Advanced Instructional School on Computational Commutative Algebra

This workshop is aimed at the research scholars working in the field of commutative algebra, algebraic geometry and invariant theory. The main theme of the workshop is Gröbner Basis and its applications. We will be covering basic topics from commutative algebra like, monomial ideals, resolutions, invariant theory. We will also study the basic applications of the theory of Gröbner Basis, like solving polynomial equations, integer programming and coding theory.

Topics to be covered: Basics of Gröbner Basis and Monomial Ideals, Gröbner Basis for Modules, Free Resolutions, Ext, Tor Polynomial Equations, Coding Theory, Invariant Theory, Integer Programming and combinatorics.

NBHM Committee for the ATM Programme

Prof. S. A. Katre	Pune U., Pune
Prof. S. Kesavan	IMSc, Chennai
Prof. Shobha Madan	IIT Kanpur
Prof. N. Nitsure	TIFR, Mumbai
Prof. J. K. Verma (<i>Convener</i>)	IIT Bombay

Eligibility for Participation

The school will admit 30 students in their first and second years of Ph.D. programme, and a few young university lecturers and college teachers. Some young undergraduate/post-graduate students having exposure to commutative algebra can also apply. Students who have attended AFS-I/II before will be given preference to attend this school.

Financial Support

Selected participants will be paid III-AC return train fare from their place of work/home town to the venue by shortest route and provided with accommodation and local hospitality.

How to Apply

The syllabus, application form and other information about the programme is available on the website:

<http://www.bprim.org/atm>

Applications may also be made on plain paper, giving the following information: Name, Date of Birth, Age, Gender, Institute/Department, Areas of interest, Address for correspondence, email address, City, State, Pincode, Academic Record: B.Sc./M.Sc. with names of the Institutes. These should be attested by Head/Principal of the institute.

Completed application form should reach

Vinay Wagh
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Guwahati, Assam, PIN: 781 039
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by **Friday, 17th Sept., 2010** List of selected candidates will be posted on the website of ATM Schools on **Monday, 20th Sept., 2010.**

Resource persons

Ravi Rao	Clare D'Cruz
Dilip Patil	J. K. Verma
S. R. Ghorpade	K. N. Raghavan
Amitava Bhattacharya	