



# National Centre for Mathematics

[www.ncmath.org](http://www.ncmath.org)

(A joint centre of TIFR and IIT Bombay)

## Advanced Training in Mathematics Schools

[www.atmschools.org](http://www.atmschools.org)

(Supported by National Board for Higher Mathematics)



### Advanced Instructional School in Classical Groups

Venue : *Indian Institute of Science Education & Research (IISER), Pune*

*5<sup>th</sup> to 26<sup>th</sup> December, 2013*

Organisers : **Anupam Kumar Singh & Shripad M. Garge**

#### Brief description of ATM Schools

Advanced Training in Mathematics (ATM) Schools are a joint effort of a large number of mathematicians across the country, with support from the National Board for Higher Mathematics. The programmes are conducted in reputed mathematics departments in Summer and Winter every year. The emphasis in these schools is on solving problems, and on the relations between basic areas of mathematics. The schools are intended mainly for Ph.D. students and lecturers. Applications are now invited for participation in the following school.

#### Advanced Instructional School in Classical Groups

The subject of 'Classical Groups' is a very fundamental topic in mathematics. These are certain groups of matrices or their quotients by small central subgroups, and can be described in terms of linear algebraic objects such as bilinear forms. The terminology is due to Hermann Weyl. Most of the classical groups are subgroups of her *all embracing majesty, the general linear group*  $GL(n)$ .

These groups can be defined over an arbitrary field. Taken over the field of real numbers they provide an important class of examples for Lie groups. As they are defined over arbitrary fields they are natural examples of algebraic groups defined over a base field. Studying these groups over finite fields gives rise to finite groups which provide a large number of finite simple groups.

In this school, we intend to introduce classical groups from the group theoretic point of view in the line with the well known book on Geometric Algebra by Emil Artin. In particular, we will not employ the Lie theoretic methods, although they are important from many other points of view.

#### Eligibility for participation

The school is aimed at 30 PhD students working in finite group theory or lie groups or algebraic groups. Strong background in linear algebra and Galois theory is required.

#### Financial Support

Selected participants will be paid AC 3-tier return train fare from their place of work to the venue by the shortest route and will be provided with accommodation and local hospitality.

#### How to apply

Application form and other information about the programme are available on the following website :

<http://www.atmschools.org/2013>

<https://sites.google.com/site/clgpkt/>

Completed application forms should reach :

**Prof. Anupam Kumar Singh**  
IISER Pune, Dr. Homi Bhabha Road,  
Pashan, Pune 411008, India.  
Email : [chevalleygroups@gmail.com](mailto:chevalleygroups@gmail.com)

Last date for receiving completed application is :

**05<sup>th</sup> July, 2013**

List of selected candidates will be posted  
on the above mentioned website on :

**15<sup>th</sup> July, 2013**

#### Resource Persons

**Shripad Garge, IIT Bombay , Mumbai**  
**Preena Samuel, HCU, Hyderabad**  
**Amit Kulshrestha, IISER, Mohali**  
**Anupam Singh, IISER, Pune**  
**Maneesh Thakur, ISI, Delhi**  
**Anuradha Garge, University of Mumbai**  
**Pratyusha Chattopadhyay, ISI Kolkata**  
**Anuradha Ahuja, IIT Bombay, Mumbai**  
**Anirban Bose, ISI Delhi**