

## 2015 CIMPA RESEARCH SCHOOL ON ALGEBRAIC REPRESENTATION THEORY

### INTRODUCTION

The 2015 CIMPA Research School on Algebraic Representation Theory will be held from 19<sup>th</sup> – 31<sup>st</sup> July 2015 at (AIMS)–South Africa in Muizenberg, Cape Town, courtesy of CIMPA, the African Institute of Mathematical Sciences (AIMS)–South Africa, The Centre of Excellence in Mathematical and Statistical Sciences (CoE-MaSS), International Mathematical Union (CDC), Office of Naval Research Science & Technology and the School of Mathematics, Statistics and Computer Science (University of KwaZulu-Natal, South Africa). The main goal of this research school will be to address aspects of the interplay that exists and explore further the interactions between finite groups and infinite dimensional Lie algebras, connections between combinatorial structures, rings, quantum groups and knot theory. The school expects to have about 50 participants.

### GOALS OF THE SCHOOL

- To enable participants to understand the basic ideas in representation theory, algebras and finite groups from different perspectives
- To introduce current trends in representation theory to graduate students and young academics, and discuss possible research topics for prospective masters and PhD students
- To provide a forum for African mathematicians to interact and exchange ideas and initiate collaborations with their counterparts from elsewhere

### SCHOOL TOPICS

The School will consist of a series of 6 mini-courses, and 14 one-hour lectures:

#### Topics for Mini-courses:

- Finite groups, representation theory and combinatorial structures
- Kac-Moody algebras, vertex operators and applications
- Modular representations of the Symmetric group
- Representation Theory of Lie Algebras
- An introduction to topologizing filters on ring
- Symmetries on groups and Ramsey theory

For topics and updates on the advanced one-hour lectures, and more details consult the research school webpage:

<http://cimpa2015algebraicreptheory.weebly.com/>

### PARTICIPATION

It is intended that the School will take the audience comprising of advanced graduate students (M.Sc. and PhD) and young academic staff members from Southern Africa and beyond. Participants should preferably have completed some years of study and research after a first degree. Senior academic members are also welcome to participate. The school will be conducted in English.

### APPLICATION

Application is open to all mathematicians and graduate students from developing countries. Applicants from SADC member states will be given preference. Limited funds are available for participants from African countries. We encourage participants to secure their own funding for travel and subsistence from their home institution

### How to Apply

**South African applicants:** send one page indicating your academic qualifications, research interest (these need to be endorsed by your head of department) to [rodrigues@ukzn.ac.za](mailto:rodrigues@ukzn.ac.za).

**non-South African:** enter your details on the accommodation/registration drop-down link on the above webpage.

**The deadline for application is 26<sup>th</sup> April 2015.**

### For More Information, Contact

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### LECTURERS FOR THE SCHOOL

#### Mini-Courses

- **Vyacheslav (Slava) Futorni**  
University of Sao Paulo, Brazil
- **Olivier Mathieu**  
University of Lyon, France
- **Jamshid Moori**  
North-West University, South Africa
- **Katharina Stroppel**  
University of Bonn, Germany
- **John van den Berg**  
University of Pretoria, South Africa
- **Yuliya Zelenyuk**  
Wits University, South Africa

#### one-Hour Advanced Lectures

- **Ben Cox**  
College of Charleston, USA
- **Dean Crnkovic'**  
University of Rijeka, Croatia
- **Rob Curtis**  
University of Birmingham, UK
- **Jonathan Hall**  
Michigan State University, USA
- **Iryna Kashuba**  
University of Sao Paulo, Brazil
- **Jennifer Key**  
Clemson University, USA
- **Dag Masden**  
University of Nordland, Norway
- **Alexander Molev**  
University of Sydney, Australia
- **Jacob Mostovoy**  
UNAM, Mexico
- **Eugin Mukhin**  
IUPUI, USA
- **Bernardo Rodrigues**  
University of KwaZulu-Natal,  
South Africa
- **Ivan Shestakov**  
University of Sao Paulo, Brazil
- **Sergey Shpectorov**  
University of Birmingham, UK
- **Hung Tong-Viet**  
University of Pretoria, South Africa

**Check webpage for updates on:**

- one-hour speakers;
- important deadlines;
- sponsors
- Abstracts of mini-courses