



IUCr MathCryst and CIMS workshop

on

Symmetry Relationships between Crystal Structures with Application to Structural Phase Transitions

October 27 - 31, 2014

School of Materials Science & Technology
Indian Institute of Technology (BHU)
Varanasi, India



Organizers

- IUCr Commission on Mathematical and Theoretical Crystallography (MaThCryst)
- IUCr Commission on Inorganic and Mineral Structures (CIMS)
- School of Materials Science and Technology, Indian Institute of Technology (BHU)

Sponsors

- International Union of Crystallography (IUCr)
- Indian Institute of Technology (Banaras Hindu University), Varanasi, India.
- Indian National Science Academy
- Rigaku Corporation, Japan and IR Technology Pvt. Ltd., India
- Science and Engineering Research Board*

International Programme Committee

- Prof. Dhananjai Pandey, Indian Institute of Technology (BHU), India, Chairman
- Prof. Massimo Nespolo, Université de Lorraine, France (on behalf of MaThCryst)
- Prof. Joao Rocha, University of Aveiro, Portugal (on behalf of CIMS)
- Prof. Mois Iliá Aroyo, Universidad del País Vasco, Bilbao, Spain
- Prof. Juan Manuel Perez-Mato, Universidad del País Vasco, Bilbao, Spain

Local Organizing Committee

- Prof. Rajiv Prakash, IIT (BHU), Chairman
- Dr. C. Rath, IIT(BHU), Treasurer
- Dr. A. K. Singh, IIT (BHU), Secretary
- Dr. C. Upadhyay, IIT (BHU), Jt. Secretary

Workshop Coordinator

- Prof. Dhananjai Pandey, IIT (BHU), Varanasi, India

*in anticipation

About the Workshop

The main focus of the workshop is on the application of representation theory to structural and magnetic phase transitions in functional materials like ferroics and multiferroics. The workshop shall have foundation lectures on topics like basics of crystallographic groups, symmetry relationships between crystal structures and representations of crystallographic groups. This will be followed by interpretation of x-ray and neutron diffraction patterns, and Raman and IR spectra from crystals undergoing structural and magnetic phase transitions. There will be hands on practicals on description of space groups in International Tables for Crystallography, Vol. A and online training for determination of subgroups of space groups, crystal structure relations and pseudosymmetry, representations of space groups and symmetry mode analysis using Bilbao Crystallographic Server. Practical on refinement of magnetic and nuclear structures using FullProf suite are also planned.

Speakers:

- Prof. Massimo Nespolo, France
- Prof. Mois Iliá Aroyo, Spain
- Prof. Juan Manuel Perez-Mato, Spain
- Prof. Juan Rodriguez Carvazal, France
- Prof. Boriána Mihailova, Germany
- Prof. Dhananjai Pandey, India,

Target Participants

PhD students, post-docs, young faculty and R & D scientists with a strong interest in the crystallography of structural and magnetic phase transitions should plan to attend. We anticipate between 40 to 50 outstation participants with nearly 50% from outside India. While the lectures have been planned in a way that builds the basic foundation before moving on to advanced topics, some elementary background in crystallography, solid state physics and group theory would be highly desirable. Selected candidates are encouraged to make poster presentation.

Registration

Registration Fee

US\$ 150.00 before August 11, 2014 and
US\$ 200 thereafter

How to apply

The application form can be downloaded from workshop homepage.

Dates to remember

Last date for receiving applications: **July 15**
Intimation to selected applicants: **July 21**
Last date for abstract submission
for poster presentation: **August 11**
Early bird registration: **August 11**
Acceptance of abstract: **August 18**
Request for campus
accommodation: **September 1**

Contact

Secretary, IUCr Workshop
School of Materials Science and Technology
IIT(BHU), Varanasi, India. 221005
Email: iucr.iitbhu@gmail.com

Accommodation

Limited on-campus accommodation on twin sharing basis (US\$ 30 or ₹1800 /person/night) in the Institute guest house is available on first-come, first-serve basis. Those interested in staying in city hotels may make their own arrangement directly or through "Make my Travel" (Email: makemytravelsvns@gmail.com)

Travel Support

Thanks to IUCr, partial support towards airfare may be provided to a limited number of deserving applicants from outside India. Attempts are being made to arrange funds for Indian participants also to provide train fare as per entitlement.

Workshop Homepage

<http://www.iitbhu.ac.in/conferences/mst/IUCr/>

The organizers of the IUCr MathCryst and CIMS Workshop on "Symmetry Relationships between Crystal Structures with Application to Structural Phase Transitions" will observe the basic policy of non-discrimination and affirms the right and freedom of scientists to associate in international scientific activity without regard to such factors as citizenship, religion, creed, political stance, ethnic origin, race, colour, language, age or sex, in accordance with the statutes of the International Council for Science. At this conference no barriers will exist which would prevent the participation of bona fide scientists.

About the city

Varanasi, also known as Kashi or Benares or Banaras, is one of world's oldest living cities. It is regarded as the religious capital of India. The city is located on the left bank of the holy river Ganga (Ganges), and is one of the seven sacred pilgrimage cities for Hindus. In the words of Mark Twain, the famous English author and littérateur: "Benaras is older than history, older than tradition, older even than legend and looks twice as old as all of them put together". Lord Budha gave his first set of sermons at Sarnath, located in the outskirts of Varanasi, nearly 2500 years ago. Buddhists from all over the world visit the holy city on pilgrimage. To be in Varanasi is an experience in itself. The majestic ghats on the banks of Ganga, morning sunrise, visit to famous temples and evening Ganga Aarati are some of the special attractions. Varanasi is also renowned for its rich tradition of music, arts, crafts and education. For more details, visit <http://varanasi.nic.in/>

