



# Winter School on Quantitative Systems Biology

7 - 20 December 2015

ICTS Campus, Bangalore, India

The International Centre for Theoretical Sciences (ICTS) and the Abdus Salam International Centre for Theoretical Physics (ICTP), are organizing a Winter School on Quantitative Systems Biology from 7 to 20 December 2015 (QSB2015), as part of the ICTP- ICTS Programme in Biology. This is the fourth school in the series on Quantitative Systems Biology, held alternately at Trieste and Bangalore. QSB2015 will be hosted in the ICTS campus in Bangalore.

The School is targeted towards young researchers, particularly those at the PhD and post - doctoral level with backgrounds in the physical and mathematical sciences and engineering, who are working in biology or hope to do so. It will give participants a broad introduction to open problems in modern biology, and provide pedagogical instruction on new quantitative approaches being used to address those problems. The main school will be preceded by an intensive three-day pre-school (5-7 December, 2015) targeted to non-biologists.

QSB2015 is centered around bacteria, the simplest known forms of life. The focus is on the basics of cellular life and the principles thereof. The emphasis is on the structures and processes that allow bacteria to survive, reproduce, evolve and form communities in their environment. This is a setting that is fertile for quantitative work, both theoretical and experimental, and for grasping some universals in biology. Lecture courses on different topics are envisaged for the school by an array of distinguished lecturers. The courses will provide an intensive background to the specific topics before turning towards cutting edge research.

Subjects include

- Bacterial cell physiology and growth
- Metabolism, regulation and response to the environment
- Structure and dynamics of biochemical networks
- Bacterial ecology
- Evolution
- Energy, information and computation in cells

## PARTICIPATION:

Scientists and students from all over the world can apply for the School. Researchers from developing countries are particularly encouraged to apply. As it will be conducted in English, participants should have an adequate working knowledge of this language. The subsistence expenses of all selected out-station participants will be borne by the School. As a rule, travel expenses of the participants should be borne by the home institution. Every effort should be made by the candidates to secure support for their fare (or at least half-fare). However, limited funds are available for some participants. Selected participants are expected to attend the entire main school. Selection for the main school automatically guarantees selection for the pre-school, but attending the pre-school is not compulsory. There is no registration fee.

## HOW TO APPLY FOR PARTICIPATION

The application form can be accessed at the ICTS or ICTP activity websites  
<http://www.icts.res.in/program/qsb2015>  
<http://indico.ictp.it/event/a14299>

Once in the website, comprehensive instructions will guide you step-by-step, on how to fill out and submit the application form.

**Deadline for requesting participation: 1 August 2015**

## Contact Information:

Email: [qsb2015@icts.res.in](mailto:qsb2015@icts.res.in) Phone: +91-80-23608200

Program page: <http://www.icts.res.in/program/qsb2015>

## ORGANIZING COMMITTEE

Antonio Celani (ICTP)  
Sanjay Jain (Delhi)  
Sandeep Krishna (NCBS)  
Vijay Krishnamurthy (ICTS)  
Pankaj Mehta (Boston)  
Matthew Scott (Waterloo)

## SCIENTIFIC ADVISORY COMMITTEE

Vijay Balasubramanian (UPenn)  
Nagasuma Chandra (IISc)  
Matteo Marsili (ICTP)  
Anirvan Sengupta (Rutgers)  
Mukund Thattai (NCBS)  
Michele Vendruscolo (Cambridge)

## SPEAKERS

## LECTURE COURSES

Nathalie Balaban\* (Jerusalem)  
Damien P. Devos (CABD, Spain)  
Mathias Heinemann (Groningen)  
Suckjoon Jun (UCSD)  
Tom Kuhlman (UIUC)  
Stanislas Leibler (Rockefeller)  
Pankaj Mehta (Boston)  
Itzhak Pilpel (Weizmann)  
Nathan Price (ISB Seattle)  
Matthew Scott (Waterloo)  
Gary Stormo (Washington)  
\* To be confirmed

## RESEARCH TALKS:

Nagasuma Chandra (IISc, Bangalore)  
Kunihiko Kaneko (Tokyo)  
Andreas Wagner (Zurich)

## PRE-SCHOOL COURSES:

Sandeep Krishna (NCBS, Bangalore)  
Supreet Saini (IIT Bombay)  
Mukund Thattai (NCBS, Bangalore)

