

Workshop on Signatures of Nonequilibrium Fluctuations in Life



15 - 19 May 2023
Trieste - Italy

Further information:

<http://indico.ictp.it/event/10169/>
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Life is a nonequilibrium phenomenon, requiring the constant consumption of energy to circumvent the pernicious effects of fluctuations. Recent advances in experimental techniques and in the theory of nonequilibrium processes offer new opportunities for the study of fluctuations in biological systems.

What are the energetic costs of key processes needed to sustain life at the cellular level? What statistical features are unique in biological systems? How can we harvest energy efficiently from living matter? What is the biological relevance of fundamental results such as the fluctuation theorems and the thermodynamic uncertainty relation?

This workshop aims at gathering active scientists (experimentalists and theorists) from different domains across physics and biology who have made significant contributions to address fluctuations in living systems. The workshop will provide a unique framework for researchers from developing countries to establish a scientific dialogue with their counterparts from around the world performing cutting-edge research in physics and biology. Students and early career scientists will get a flavour of the possibilities and outstanding questions in biophysics.

The aim of the workshop is to discuss existing efforts on understanding nonequilibrium fluctuations using biological and physical methods, but more importantly, to identify future questions in this domain and the collaborations that will help to answer them.

Topics:

- Sensory systems, oscillators and memory
- Active matter
- Cytoskeleton and membrane dynamics
- Molecular motors
- Nonequilibrium thermodynamics

How to apply:

Online application:
<http://indico.ictp.it/event/10169/>

There is no registration fee.

Grants:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries.

Organisers:

Jordan Horowitz, U. of Michigan
Saar Rahav, Technion
Vaishnavi Ananthanarayanan, UNSW Sydney
Edgar Roldán, ICTP

Local Organiser:

Edgar Roldán, ICTP

Speakers:

Anjana Badrinarayanan, NCBS Bangalore
Urna Basu, Bose Nat. Centre for Basic Sciences, Kolkata
John Bechhoefer, Simon Fraser U.
Gili Bisker, Tel Aviv U.
Jonathon Howard, Yale U.
Jim Hudspeth, Rockefeller U.
Sabine Klapp, TU Berlin
Anatoly B. Kolomeisky, Rice U.
Sandhya Koushika, TIFR Mumbai
Vijaykumar Krishnamurthy, ICTS Bangalore
Christian Mæs, KU Leuven
Pascal Martin, Institut Curie
Juan Parrondo, U. Complutense de Madrid
Nenad Pavin, U. of Zagreb
Luca Peliti, SMRI Rome
Simone Pigolotti, OIST
Thomas Pucadyil, IISER Pune
Madan Rao, Raman Res. Institute & NCBS, Bangalore
Felix Ritort, U. of Barcelona
Pablo Sartori, IGC, Oeiras
Udo Seifert, U. of Stuttgart
Pieter Rein Ten Wolde, AMOLF
Iva Tolic, R. Boskovic Institute, Zagreb
Suri Vaikuntanathan, U. of Chicago
Sandhya S. Visweswariah, IISc Bangalore
Jin Wang, Stony Brook U.
Christoph Zechner, MPI-CBG Dresden

Deadline:

7 March 2023

