

Advanced School on Quantitative Principles in Microbial Physiology: from Single Cells to Cell Communities

2 - 13 October 2023
An ICTP Meeting
Trieste, Italy



Further information:

<http://indico.ictp.it/event/10213/>
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Microbes are found all over our planet, across an enormous variety of environmental conditions. Their physiological capacities reflect the characteristics of their various niches, including competition, randomness, dynamics, nutrient availability, and stresses. Despite their behavioral diversity, microbes share the same underlying biochemical and physical principles.

In the last two decades systems biology and biophysics have made substantial advances in predicting the emergent physiological capacities of microbes from basic principles, making use of genomic information, massive data collection, and mathematical models. A key insight has been that the global protein expression profile of the cell is determined by the allocation of limited biosynthetic resources. Current research aims at understanding how cells modulate resource allocation to improve biological fitness and how the resulting cell states reflect niche characteristics.

In our meeting, we gather systems biologists and physicists to discuss questions at the frontier of resource allocation approaches in cell physiology to explore their general applicability and limitations. The main challenge is to better understand the role of interactions and cell-to-cell variability across multiple scales, with the hope of bridging the gap between cell physiology and microbial ecology. The aim is to map the contours of a general theory for predicting emergent cell-physiological properties from genomic information and basic physicochemical principles.

Directors:

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Speakers:

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How to apply:

Online application:
<http://indico.ictp.it/event/10213/>

Female scientists are encouraged to apply.

Grants:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries. There is no registration fee.

Deadline:

31 May 2023



Inria



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