

# INSTITUT D'ETUDES SCIENTIFIQUES DE CARGÈSE

## Cargèse International School 2018

## Physics of integrated biological systems

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Web site

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molecular  
systems  
biology

EMBOpress



Over the past 10 years, physical approaches to biological problems have played a central role in revealing the mechanisms that drive biological processes. However seldom courses introduce how this collaboration between fields actually works.

The objective of this summer school is to propose to young researchers – typically graduate students or post-docs – a training session centered on interactions at the interface between physics and cell and developmental biology, to gain an integrated view from the molecular scale to the cell to the organism, but also interrogating the scalability of approaches in the context multi-scale systems.

This course is targeted for biologists with an interest in quantitative studies without being experts in maths/physics. No specific physics background is required but a curious mind and a general interest in experimenting first hand how physics and biology can collaborate to reveal the basic mechanisms of morphogenesis. Step by step introductions will be given for each problem, describing how the physics biology makes the field move forward.

### Main topics will include

- Physics of biological polymers
- Polymers and molecular motors
- Dynamic partitioning of the cell
- Cell mechanics
- Growth and morphogenesis

### Eminent scientists in the field will animate the workshop. These include:

Anna Akhmanova (Utrecht Univ. NL), Alexander Aulehla (EMBL Heidelberg DE), Yohanns Bellaiche (Inst. Curie Paris FR), Martine Ben Amar (ENS Sorbonne Univ. Paris FR), Arezki Boudaoud (RDP ENS Lyon FR), Marileen Dogterom (Delft Univ. NL), Nathalie Dostatni (Inst. Curie FR), Suzanne Eaton (Tu Dresden DE), Paul François (McGill Univ. CA), Nate Goehring (The Francis Crick Inst. UK), François Graner (Univ Paris Diderot FR), Stephane Grill (TU Dresden DE), Olivier Hamant (RDP INRA CNRS UCBL1 ENS Lyon FR), Carl Philipp Heisenberg (ISTAT), Anne Houdusse (Inst. Curie Paris FR), Frank Jülicher (Max Planck Inst. DE), Taeyon Kim (Purdue Univ. US), Keren Kinneret (Technion Univ. IL), Karstern Kruse (Univ of Geneva CH), Michel Labouesse (Inst. for biology Paris FR), Thomas Lecuit (Dev. Biology Inst. Marseille FR), Pierre-François Lenne (Dev. Biology Inst. Marseille FR), Martin Loose (ISTAT), Jacques Prost (Inst. Curie FR), François Robin (Inst. Biology Paris FR), Guillaume Romet-Lemonne (Inst. J. Monod FR), Aurélien Roux (Univ. Geneve CH), Guillaume Salbreux (The Francis Crick Inst. UK), Marie-Emilie Terret (CIRB Collège de France FR), Raphaël Voituriez (Lab. Jean Perrin Sorbonne Univ. FR), Aleksandra Walczak (ENS FR), Eric Wieschaus (Princeton Univ. US)

### Organization Committee

Nate Goehring (The Francis Crick Inst. UK), Olivier Hamant (LRDP ENS Lyon FR), Michel Labouesse (Inst. for Biology Paris-Seine FR), François Robin (Inst. for Biology Paris-Seine FR), Marie-Emilie Terret (CIRB Collège de France FR), Raphaël Voituriez (Lab. Jean Perrin Sorbonne Univ. FR)

### Application and registration

<http://meetings.embo.org/event/18-biosystems>

Contact : [physomorph@gmail.com](mailto:physomorph@gmail.com)

Deadline Application : 2018, June 1st

Registration Fees : 850 €