

## INTERNATIONAL WINTER SCHOOL

### New Challenges in the Physics of the Brain: From Cells to Organs

14-19 February 2016

[Ecole de Physique des Houches, France](#)

*Download the poster for the event [here](#)*

#### Description

In recent years, the brain has been the subject of extensive investigations. Yet, despite formidable advances in neuroscience, very little is known about the physics of the brain and how different scales interact. The goal of this combined interdisciplinary School/Workshop, organized by the **International Brain Mechanics Lab** (<http://www.brainmech.ox.ac.uk>), is to present introductory lectures and state-of-the-art research in multiscale brain physics. In particular we will discuss challenges related to morphogenesis, neurodevelopment, cerebral edema, hydrocephaly, craniectomy, spinal cord injury, tumour growth, and traumatic brain injury.

The morning lectures will provide a general introduction aimed at a multi-disciplinary audience and the evening sessions will present advanced research talks.

#### Organisers

Alain Goriely (University of Oxford), Antoine Jérusalem (University of Oxford), Ellen Kuhl (Stanford University) and Julian A. Garcia Grajales (Oxford)

#### Confirmed speakers

- **Kristian Franze (University of Cambridge):** Axon mechanics
- **Michael Gilchrist (University College Dublin):** Head Models.
- **Alain Goriely (University of Oxford):** Cerebral electrochemistry
- **Antoine Jérusalem (University of Oxford):** Computational Mechanics of the Brain
- **Ellen Kuhl (Stanford University):** Brain morphogenesis
- **Zoltan Molnar (University of Oxford):** Physiology and morphogenesis
- **Riyi Shi (Purdue University):** Brain mechanics and cognitivity
- **Yiannis Ventikos (UCL London):** Cerebral fluid mechanics and poroelasticity

**Registration: \*\*The number of places is limited\*\***

To apply for a place at the school, please follow the following steps

Email: **Julian A. Garcia Grajales** [julian.garciagrajales@maths.ox.ac.uk](mailto:julian.garciagrajales@maths.ox.ac.uk) **by 04 December 2015**

Stating your name in the Subject line and the following information:

1. Full Name:
2. Email and webpage (if available):
3. Affiliation (University and Department/Lab/Group):
4. Status (PhD, postdoc, researcher):
5. Why are you interested in this school (in a few of sentences)?
6. If you want to give a talk, please submit a title (the time for sessions is limited and we may not be able to accommodate all requests)

**For Post-doc and PhD students:**

7. Title of thesis or project.
8. Do you need financial support (we may offer limited support depending on funding)?
9. Would you like to present a short talk or a poster? If so, please send us a title and a short abstract.

**All participant will have the opportunity to present their own work in a poster session.**

10. Please ask your supervisor to send a brief email to the same address with the same Subject heading in support of your application (and request for financial support if applicable):

The registration fee of **400€** includes registration, accommodation, and meals for the duration of the event and is payable upon arrival.

**Applicants will be contacted by email by 18 December, 2015.**

**General information**

- *Arrival and departure:* The workshop will start on Monday 15 February, 2016 at 09:00am.

**Participants can arrive after 3pm on Sunday 14 February.**

**The workshop will end on Friday 19 February after lunch.**

- *Conference centre:* The workshop will take place in a specialised conference centre (for all facilities, see the [website](#)). Attendees will be accommodated in single rooms, within the conference centre.

- *Meals:* Meals are taken at the school dining room. Drinks are not included. Free coffee & tea is available in the bar and in the main building.

- *Talks:* There will be 2 sessions of talks every day (except Wednesday): one in the morning (9:00am to 12:00pm) and one at the end of the afternoon.

On Wednesday, there is only one session. Introductory lectures will be in the morning, research and early career talks in the evening.

- *Free afternoons:* All afternoons are free for scientific discussions.

- *Fees:* The fees for a week, including registration, housing and meals are **400€**, payable on arrival (cash or credit cards). A limited number of waivers will be available depending on need and pending proposals. If you need financial help, please send us a description of your needs with your registration.

- *Weather:* The weather is cold and snowy in the Alps at this time of the year, and all participants should have warm clothes and good shoes. People who would like to go skiing should also wear appropriate outfits.

For more information, <http://houches.ujf-grenoble.fr/en/practical-information/>

## Where is it?

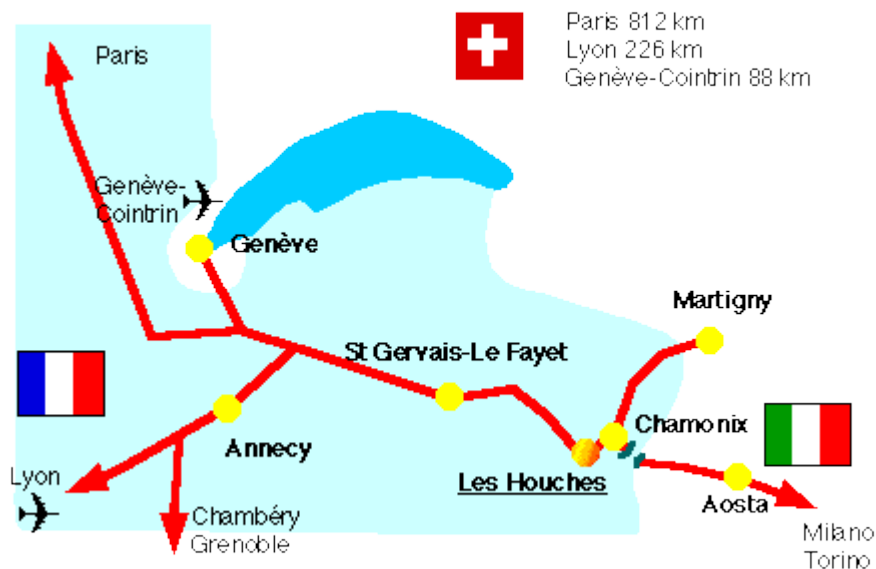
The conference centre is located in the small ski resort of Les Houches, in the French Alps. It is 10 minute drive from Chamonix and one hour from Geneva.

Les Houches is accessible (by car, taxi, bus, train) from Geneva international airport (See the schematic map below).

**Full travel information is available on the [website](#) of the conference centre.**

If you plan to come by car, you must have snow tyres fitted. There is no way to climb up the corniche that leads to the conference centre without snow tyres.

If you choose to use a limousine service (sort of shared taxi) from Geneva airport to the Chamonix area, you should notify that you are going to the conference, and the limo company will group you with others



participants.