

# **Electro-Activity of Biological Systems**

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## **Editors:**

**Eric Raspaud  
Christian Marliere  
Christophe Regnard**

**Renaud Cornut  
Rachel Meallet-Renault**

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BP 112  
F-91944 Les Ulis Cedex A  
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Phone: +33 (0) 1 69 18 75 75

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Wednesday, Nov. 18<sup>th</sup> 2015.

9h15-10h00 Registration and welcome coffee

*Session: subcellular systems.*

Chairwoman: Emily C. Hollenbeck

10h00-10h40 Invited speaker **Pierre Charnet**  
"Voltage-gated Ca<sup>2+</sup> channels: structure, permeation and inactivation properties" pg. 1

10h45-11h25 Invited speaker **Tomaso Zambelli**  
"Force-controlled electrophysiology" pg. 2

11h30-11h55 Coffee break

*Session: tissues, organs, biofilms.*

Chairman: Vic Norris

12h00-12h40 Invited speaker **Dominique Chapelle**  
"Multi-scale modeling of chemo-mechanical coupling in muscle contraction and applications to cardiac modeling" pg. 3

12h45-14h15 Lunch

Chairwoman: Cécile Delacour

14h20-14h40 Oral conference

- **Christian Marlière:** "A direct and at nanometer scale study of electrical charge distribution on membranes of alive cells." pg. 4

14h45-15h25 Invited speaker **Derek Lovley**  
"Electromicrobiology: Electron Transfer via Biowires in Nature and Practical Applications" pg. 5

*Session: animals, plants.*

Chairwoman: Cécile Delacour

15h30-16h10 Invited speaker **Jean-Marie Frachisse**

“Ion channels in mechanosensing and electrical signaling in plants” pg. 6

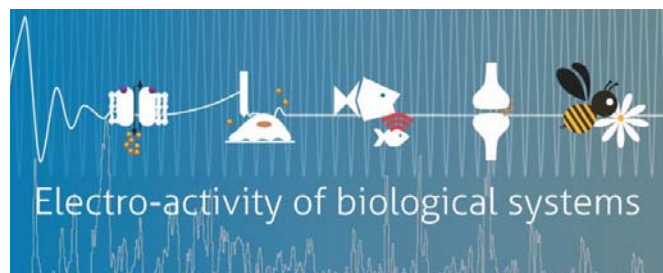
16h15-16h45 Exhibitors

16h50-17h30 Beer session and poster

Chairman: Eric Raspaud

17h35-18h15 Invited speaker **Daniel Robert**

“The bee, the flower and the electric field” pg. 7



Thursday, Nov. 19<sup>th</sup> 2015.

9h00-09h25 Tea-Coffee

*Session: subcellular systems.*

Chairman: Gregory Sutton

9h30-10h10 Invited speaker **Manon Guille-Collignon**

“More Transparency in BioAnalysis of Exocytosis: Coupling of Electrochemistry and Fluorescence Microscopy at ITO Electrodes” pg. 8

10h15-10h35 Selected conferences

- **Michal Cifra:** " Cellular electrodynamic activity " pg. 10

10h44-11h10 Coffee break

*Session: cells and networks.*

Chairman: Renaud Cornut

11h15-11h55 Invited speaker **Pascal Darbon**  
"Spinal cellular and network properties modulate pain perception" pg. 11

12h00-12h20 Selected conferences

- **Clément Lafargue:** " Electro-Optic Microscopy (EOM) for cell biology " pg. 13

12h25-13h55 Lunch

*Session: tissues, organs, biofilms.*

Chairman: Jérôme Delacotte

14h00-14h40 Invited speaker **Alain Bergel**  
"How could chemical engineering help in deciphering electro-microbial mechanisms?" pg. 15

*Session: animals, plants.*

14h45-15h25 Invited speaker **Rüdiger Krahe**  
"The active electric sense of weakly electric fish: from electric organ discharge to sensory processing and behaviour." pg. 17

15h30-15h50 Selected conferences

- **Thomas Boulier:** " A mathematical model for electrolocation in weakly electric field" pg. 18

15h55-16h25 Coffee break and posters

Chairman: Eric Raspaud

16h30-17h15 Selected conferences

- **Gregory Sutton:** "*Bumble Bees (Bombus terrestris) use mechanosensory hairs to detect electric fields*" pg. 19
- **Eric Herbert:** "Green Thermoelectricity: Observation and analysis of plant thermoelectric response" pg. 20