

EPFL Center For Neuroprosthetics

School of Engineering & School of Life Sciences



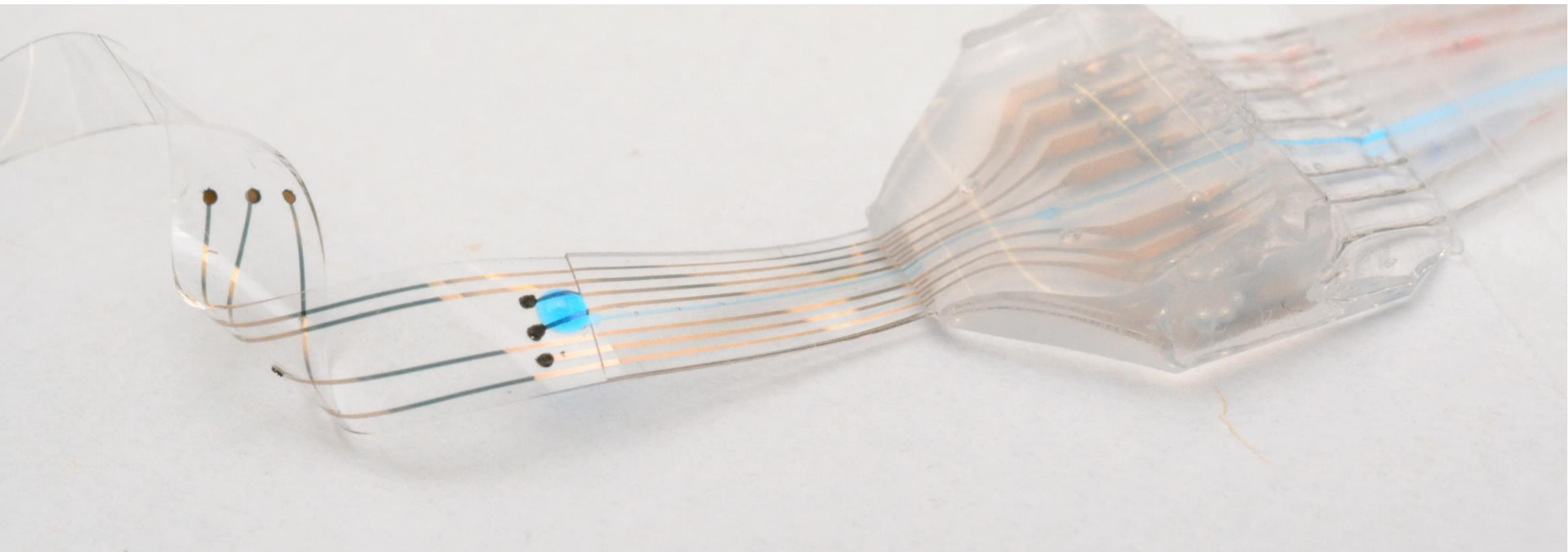
CNP Annual Retreat
25-26 JANUARY 2016 – CHAMONIX MONT BLANC

CNP RETREAT – 25-26 JANUARY 2016 - PROGRAM

DAY 1 - January 25 Monday		
7:45 – 10:00	<i>Transport - EPFL LSA - Chamonix</i>	
8:20 – 10:00	<i>Transport - Campus Biotech GVA - Chamonix</i>	
10:00 – 10:30	<i>Arrival & Coffee</i>	<i>Majestic congress center</i>
10:30 – 10:45	Welcome	Prof. Olaf Blanke
10:45 – 11:30	Invited lecture 1 Dr Jocelyne Bloch, CHUV	Chairman : Prof J. Del R. Millán Presentation with discussion (30 + 15 minutes)
11:30 – 12:15	Invited lecture 2 Prof Diego Ghezzi	Chairman : Prof S. Micera Presentation with discussion (30 + 15 minutes)
12:15 – 16:00	<i>Lunch & outdoor activities</i>	<i>Lunch bags on departure</i> <i>Ice-skating at the "Patinoire" R.Bozon</i> <i>Check-in Hotel "Le Prieuré"</i>
16:00	<i>Coffee break</i>	<i>Poster setup</i>
16:30 – 18:00	Session 1 Bionic Hand and Artificial Touch F.Petrini & G. Rognini / A. Gerratt & M. Bassolino	Chairman : Prof D. Ghezzi Two presentations with discussion (25 + 5 minutes each) + General discussion (30 minutes)
18.00-19:00	Poster session	Organizer : Dr B. Herbelin
19.00-19:30	<i>Apéro</i>	<i>Majestic congress center</i>
	<i>Break</i>	
20:30	<i>Dinner & Party</i>	<i>Restaurant "La télécabine"</i>

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CNP Annual Retreat
25-26 JANUARY 2016 – SCIENTIFIC PROGRAM

CNP RETREAT – 25-26 JANUARY 2016 - SEMINARS

Session 1

Bionic Hand and Artificial Touch

Giulio Rognini & Francesco Petrini

Laboratory of Cognitive Neuroscience & Translational Neuroengineering Laboratory

Title



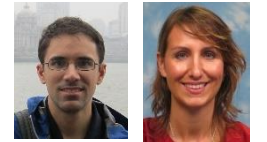
Mon. Jan 25
16:30 – 18:00

Chairman :
Prof. D. Ghezzi

Aaron Gerratt & Michela Bassolino

Laboratory for Soft Bioelectronic Interfaces & Center for Neuroprosthetics Valais

Artificial embodiment: from materials to brain stimulation



Session 2

Decoding and neurofeedback

Kristen Emmert & Maria Laura Blefari

Medical Image Processing Laboratory & Brain-Machine Interface laboratory

Modulation and separation of brain activity: insights from BCI and real time fMRI



Tues. Jan 26
9:00 – 10:30

Chairman :
Prof G. Courtine

Yury Koush & Tiffany Corbet

Medical Image Processing Laboratory & Brain-Machine Interface laboratory

EEG BCI and fMRI neurofeedback: recovery and modulation of brain connectivity in motor impairments and emotion regulation



CNP RETREAT – 25-26 JANUARY 2016 - SEMINARS

Session 3

Cognition and cortical repair

Roy Salomon & Thomas Bolton

Laboratory of Cognitive Neuroscience & Medical Image Processing Laboratory

New approaches to psychiatry: from robotics to imaging



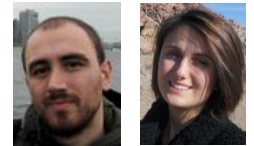
Tues. Jan 26
12:30 – 14:00

Chairman :
Prof S.P. Lacour

Iñaki Iturrate & Elvira Pirondini

Brain-Machine Interface laboratory & Translational Neuroengineering Laboratory

New insights on neurophysiological markers of Parkinson's disease and stroke



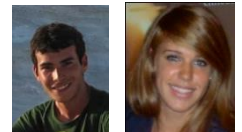
Session 4

Locomotion and spinal cord repair

Emanuele Formento & Léonie Asboth

Translational Neuroengineering Laboratory & IRP Chair in Spinal Cord Repair

Neuromodulation strategies and mechanisms for restoring locomotion after spinal cord injury



Tues. Jan 26
14:15 – 15:45

Chairman :
Prof. D.Van De Ville

Arthur Hirsch & Fabien Wagner

Laboratory for Soft Bioelectronic Interfaces & IRP Chair in Spinal Cord Repair

Translational approaches to restoring locomotion after spinal cord injury



CNP RETREAT – 25-26 JANUARY 2016- INVITED LECTURES

Mon. Jan 25,
10:45 – 11:30
Chairman :
Prof J. del R. Millán



Dr Jocelyne Bloch Department of neurosurgery, CHUV. **The neurosurgical touch**

Dr Jocelyne Bloch graduated in the Faculty of Medicine of Lausanne University in December 1994. She trained in Neurosurgery, with Prof Nicolas de Tribolet, Prof Arnaldo Benini, and Prof Jean Guy Villemure in Lausanne and Zurich and obtained her neurosurgical degree in 2002. She specialized in stereotactic and functional neurosurgery, and acquired an extensive experience and expertise in deep brain stimulation (DBS) and neuromodulation for movement disorders, pain and epilepsy. She is in charge of the functional neurosurgical unit at the CHUV. From 1997 to 1999, she joined the laboratory led by Prof Patrick Aebischer where she performed both basic and translational research projects in the field of gene therapy and neuroregeneration. She acquired a substantial experience in experimental neurosurgery in multiple animal models of neurological disorders including Parkinson's disease and spinal cord injury. Very active in experimental medicine and translational neuroscience, she nourishes a profound interest in the development of new indications for DBS, and in advancing technologies and therapeutic paradigms in neuromodulation, neuro-regeneration, and cell therapy. She seeks to gather all these novel therapeutic strategies under a common umbrella that will foster optimization of treatment options for patients suffering from neurological impairments.

Mon. Jan 25,
11:30 – 12:15
Chairman:
Prof S. Micera



Prof Diego Ghezzi Medtronic Chair in Neuroengineering, EPFL. **Neuroprosthetics and vision**

Prof. Diego Ghezzi holds the Medtronic chair in neuroengineering at EPFL School of Engineering. He received his M.Sc. in Biomedical Engineering (2004) and Ph.D. in Bioengineering (2008) from Politecnico di Milano. From 2008 to 2013, he completed his postdoctoral training at Istituto Italiano di Tecnologia in Genova at the department of Neuroscience and Brain Technologies where he was promoted to Researcher in 2013. In 2015, he was appointed as Tenure Track Assistant Professor of Bioengineering in the EPFL Center for Neuroprosthetics. In the last decade, various clinical trials proved the capability of visual prostheses, in particular retinal implants, to restore a useful form of vision. These encouraging results promoted the emerging of several strategies for neuronal stimulation aiming at the restoration of sight. Therefore, novel concepts for neuronal stimulation are currently under investigations as building blocks of the next generation of visual implants. The interactions of several disciplines such as material science, engineering, biology, neuroscience, and ophthalmology will be key element for the success of making visual prosthesis a solution for fighting blindness. This lecture will address the key points related to the development and validation of visual prostheses. Moreover, a larger perspective of vision restoration in the context of multi-sensory perception and neuroprosthetics will be discussed.

Tues. Jan 26,
14:45 – 15:30
Chairman:
Prof O. Blanke



Prof Friedhelm Hummel Neurology Department, UKE. **Interareal interactions in the sensorimotor network**

Prof Friedhelm C. Hummel serves as the Vice Director of the Department of Neurology and the Co-Chairman of the University Sleep Laboratory of the University Medical Center Hamburg-Eppendorf, Hamburg. He is the head of the BrainImaging and NeuroStimulation (BINS) Laboratory, and a leading expert in functional regeneration after stroke, mechanisms of healthy aging, interventional neuroscience and neuroplasticity. To this end, he is using a multimodal systems neuroscience research approach in humans, including behavioral tasks focused on executive control and learning, non-invasive brain stimulation, functional and structural imaging and modelling. Since 2013, he is holding a guest professorship at the Favoloro University, Buenos Aires, Argentina.

CNP RETREAT – 25-26 JANUARY 2016 - PROGRAM

DAY 2 - January 26 Tuesday		
08:00 – 9:00	<i>Breakfast & Hotel Check out</i>	
9:00 – 10 :30	Session 2 Decoding and neurofeedback K. Emmert & M.L. Blefari / Y. Koush & T. Corbet	Chairman : Prof G. Courtine Two presentations with discussion (25 + 5 minutes each) + General discussion (30 minutes)
10:30 – 10:45	<i>Coffee break</i>	
10:45 – 12:15	Session 3 Cognition and cortical repair R. Salomon & T. Bolton / I. Iturrate & E. Pirondini	Chairman : Prof S. Lacour Two presentations with discussion (25 + 5 minutes each) + General discussion (30 minutes)
12:15 – 13:00	<i>Standing lunch</i>	<i>Poster removal</i>
13:00 – 14:30	Session 4 Locomotion and spinal cord repair E. Formento & L. Asboth / A. Hirsch & F. Wagner	Chairman : Prof D. Van De Ville Two presentations with discussion (25 + 5 minutes each) + General discussion (30 minutes)
14:30 – 14:45	<i>Coffee Break</i>	
14:45 – 15:30	Invited lecture 3 Prof Friedhelm Hummel, UKE	Chairman : Prof O. Blanke. Presentation with discussion (30 + 15 minutes)
15:30 – 16:00	Closing remarks	All CNP Faculty
16:30	Travel back to GVA (~18:00) & LSA (~19:00)	<i>Departure from Majestic congress center</i>

CNP RETREAT – 25-26 JANUARY 2016 – MAP

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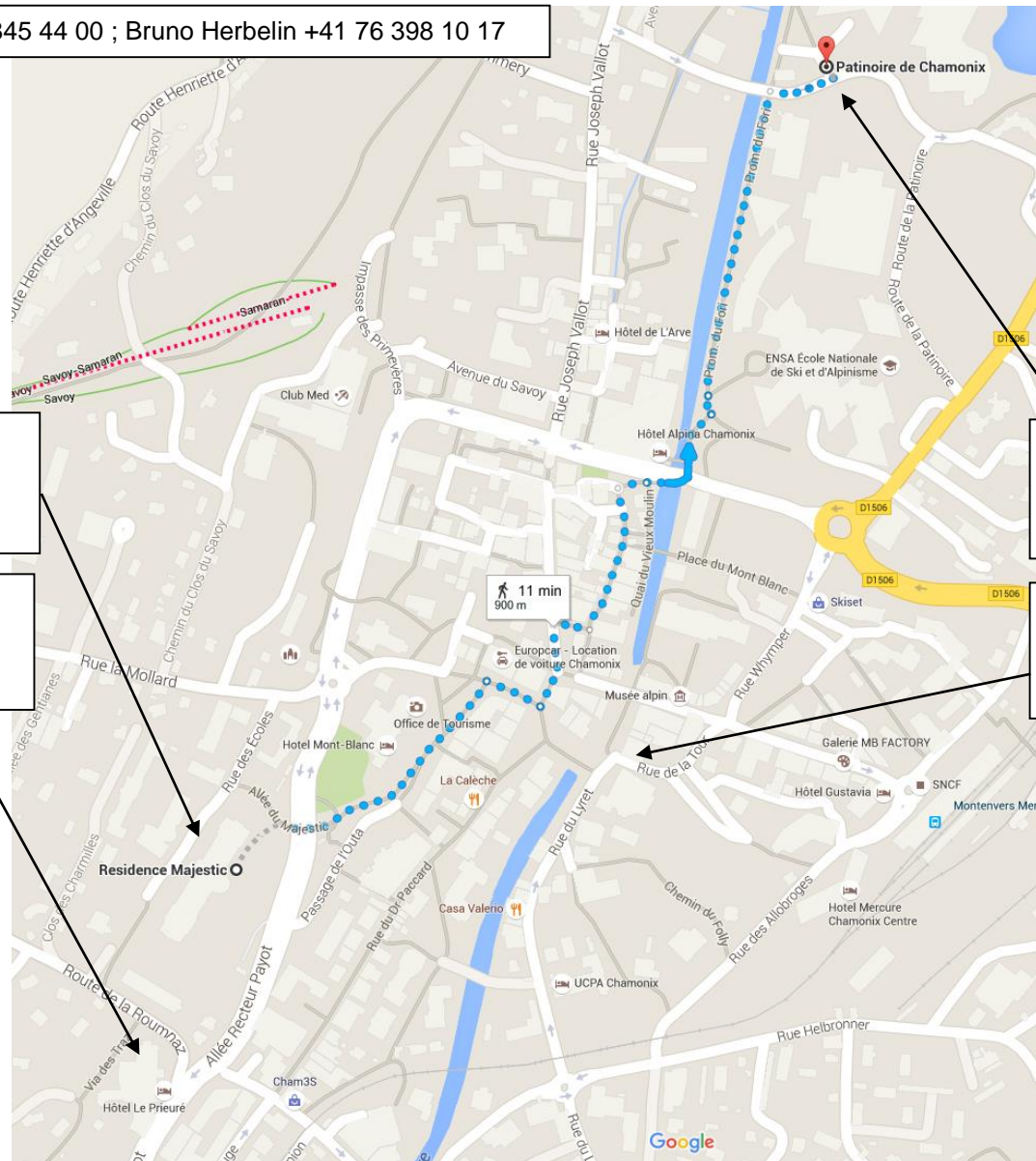


Majestic Congress Center
353 Allée du Majestic,

<http://www.congres-chamonix.com/>

Hôtel Le Prieuré
149 allée Recteur Payot

<http://www.prieurechamonix.com/>



Patinoire R. Bozon
214 Avenue de la Plage

<http://www.chamonix.com/>

Restaurant La Télécabine
27 Rue de la Tour

<http://www.restaurant-latelecabine.fr/>

