



Nanofluidics Young Investigators Workshop

Final Program

13–16 July
EPFL, Lausanne

Organizers:

Prof. Nikita Kavokine (EPFL)

Prof. Yujia Zhang (EPFL)

Prof. Théo Emmerich (ENS Lyon)

Sponsored by

13 July Monday Day 1

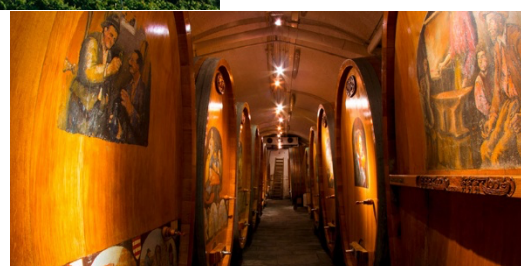
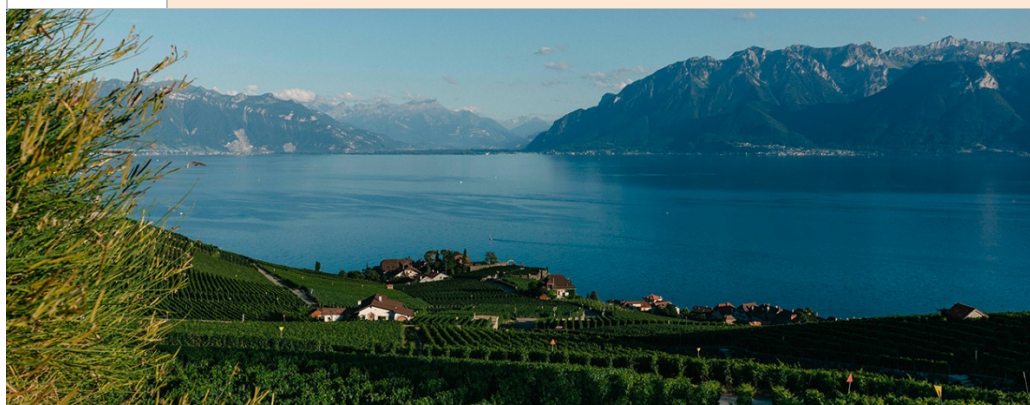
9:00	Workshop registration (Location: BM 5202 on the main EPFL campus)	
9:30	Opening & welcome — Nikita	
9:40	Workshop schedule introduction — Yujia	
SESSION 1 Confined Water: Structure, Dynamics & Friction <i>Chair: Théo Emmerich</i>		
9:50	Matthias Kuehne 30 min	Water in individual carbon nanotubes and ion transport in in-series nanopores
10:20	Dariusz Heiranian 30 min	Molecular origins of friction in graphene oxide: how sparse functionalization governs aqueous transport
10:50	Coffee break (25 min)	
SESSION 2 Imaging & Probing Nanoscale Transport <i>Chair: Cecilia Herrero</i>		
11:15	Nathan Ronceray 30 min	Imaging live plant nanofluidics
11:45	Guilhem Mariette 15 min	AFM of hydrated layered materials: confined water as a nonlinear viscoelastic fluid
12:00	Sandra Vasiljević 15 min	Single-molecule tracking in nanochannels
12:15	Lunch break (Gina Ristorante, near the Metro EPFL station)	
SESSION 3 Nanopores: Single-Molecule Sensing & Sequencing <i>Chair: Nathan Ronceray</i>		
14:00	Chan Cao 30 min	Nanopore single-molecule bioanalysis
14:30	Yujia Qing 30 min	Engineering of transmembrane β-barrel (Online)
15:00	Paul Robin 30 min	Ion transport in biological pores: into the wild
15:30	Louis Perrin 15 min	Sensing amino acids with de novo designed nanopores: a molecular dynamics perspective
15:45	Group photo	
16:00	Poster session & drinks	

14 July Tuesday Day 2

SESSION 4 Membranes & Selective Ion Transport		Chair: Chan Cao
9:00	Cody Ritt 30 min	Is dehydration really what governs ion selectivity in nanoporous polymer membranes?
9:30	Friedrich Walzel 15 min	Independent mobility and concentration measurements in nanoconfinement
9:45	Coffee break (30 min)	
SESSION 5 Iontronics, Memristors & Neuromorphic Nanofluidics		Chair: Mathieu Lizée
10:15	Yujia Zhang 30 min	Bioiontronics for future medicine
10:45	Kai Xiao 30 min	Iontronic materials for neuromorphic devices
11:15	Theo Emmerich 30 min	Direct imaging reveals electromechanic ionic memory in 2D nanochannels
11:45	Xiangrui Zhang 15 min	Modulating ionic transport in double-gated van der Waals devices
12:00	Lunch break (Gina Ristorante)	
SESSION 6 Ion & Proton Transport in 2D Materials		Chair: Baptiste Coquinot
14:00	Marcelo Lozada-Hidalgo 30 min	Field effects in proton transport through 2D crystals
14:30	Abdulghani Ismail 30 min	Nanoconfined electrolytes in 2D nanochannels: from memristive behaviour to tunable ionic transport
15:00	Mathieu Lizée 30 min	Ion transport in graphite 2D nanochannels: from mechanosensitivity engineering to the Mermin–Wagner theorem
15:30	Yixuan Pu 15 min	Controlling the phase behaviour of ultraconfined water via bilayer-graphene stacking
15:45	Coffee break (30 min)	
16:15	Lab visit: The Quantum Plumbing Lab , CH A2 398 (Sign up here in advance)	
17:15	Lab visit: Laboratory for Bio-Iontronics , BM 3129 (Sign up here in advance)	
19:00	Dinner (Au Chat Noir, Rue Beau-Séjour 27, 1003 Lausanne)	

15 July Wednesday Day 3

SESSION 7 Transport at Solid–Liquid Interfaces		Chair: Marcelo Lozada-Hidalgo
9:00	Baptiste Coquinot 30 min	Nanofluidic transport coupled with the electrons
9:30	Cecilia Herrero 30 min	Fluids at electrostatically active interfaces: coupling, friction, and hydroelectronic drag
10:00	Nikita Kavokine 30 min	The LAMA effect: phonon modes for faster flow
10:30	Elena Köhler-Ruiz 15 min	Frequency-dependent susceptibility of water near metal interfaces
10:45	<i>Coffee break (30 min)</i>	
SESSION 8 Interfacial Energy: Hydrovoltaics & Phase Change		Chair: Abdul Ismail
11:15	Giulia Tagliabue 30 min	Harnessing light and heat in hydrovoltaic devices
11:45	Zhengmao Lu 30 min	Hydrodynamic scale separation in boiling phenomena
12:15	Lunch (Auberge de la Gare, Rue de la Gare 1, 1091 Grandvaux) <i># Shuttle bus will be provided for transportation from EPFL to Grandvaux</i>	
14:00	Scientific discussion in nature (Domaine Bovy, 1071 Chexbres) <i># The event involves moderate hiking & drinking</i>	
20:00	Dinner (Brasserie de Montbenon, All. Ernest-Ansermet 3, 1003 Lausanne)	



16 July Thursday Day 4

SESSION 9 Electrokinetics at Charged & Metallic Interfaces		Chair: Cody Ritt
9:00	Romain Lhermerout 30 min	First experimental test of electrokinetics theory
9:30	Pedro de Souza 30 min	Orientational ordering of polar liquids at charged interfaces
10:00	Julien Allègre 15 min	Electrokinetic damping of an electrolyte confined between metallic surfaces probed with a dynamic SFA
10:15	Élodie Millan 15 min	Disentangling bulk and surface contributions to charge transport using sphere–plane geometry
10:30	<i>Coffee break (30 min)</i>	
11:00	Group discussion — Future of NYPI	Chair: Nikita, Yujia, and Théo
12:00	<i>Lunch break (Gina Ristorante)</i>	
14:15	Lab visit: Laboratory of Nanoscience for Energy Technologies , MED 1 2626 (Sign up here in advance)	
15:15	Lab visit: Energy Transport Advances Laboratory , MED 3 1626 (Sign up here in advance)	
16:00	End of workshop	

Workshop venue and other useful information

All talks and the poster session will be held around [BM 5202](#) on the **main EPFL campus**. The BM building is very close to the EPFL station of the Metro Line M1. You may use the [interactive map](#) to find the place or contact the hosts directly.

Hotel location: Palmiers by Fassbind, Rue du Petit-Chêne 32, Centre-ville, 1003 Lausanne

Please ask the hotel reception for a free public transport pass covering the dates of your stay.

Social program

On Wednesday, we will take a bus from EPFL to Grandvaux for a lunch at [Auberge de la Gare](#). From there, we will take a scenic walk across the Lavaux vineyards to the village of Chexbres, where we will try the wines of [Domaine Bovy](#) (the tasting is scheduled at 16:30). Alternatively, it is possible to take the train from Grandvaux to Chexbres. From there, we invite you to walk down to the beach of Rivaz for a swim in the lake. There are trains every hour from Rivaz to Lausanne - please come back in time for the workshop dinner ([brasserie de Montbenon](#), 20:00). See the [workshop website](#) for a map and train schedule.

Special thanks to the workshop administration team:

- Ms. Gwenaëlle Caccivio (gwenaelle.caccivio@epfl.ch);
- Ms. Rosana Blanchard (rosana.blanchard@epfl.ch);
- Student coordinator: Kenza Hessissen (For emergency contact: kenza.hessissen@epfl.ch).