CV - Lydéric Bocquet

Date of birth: 10 décembre 1968,
Email: lyderic.bocquet@ens.fr
Web: http://www.phys.ens.fr/~lbocquet
Address: Laboratoire de Physique, Ecole Normale Supérieure, 24 rue Lhomond, 75005 Paris
Present position: Directeur de Recherche au CNRS and joint professor at ENS.

Research unique identifiers:
- *Researcher id:* http://www.researcherid.com/rid/A-2241-2012
- *Google Scholar id:* http://scholar.google.fr/citations?user=_TOxI8oAAAAJ&hl=fr
- *Orcid id:* orcid.org/0000-0003-3577-5335

Academic record and education

- 2014- Directeur de Recherche at CNRS and joint Professor at ENS
- 2002-2014, Full Professor (PRCE) at Université Lyon 1 and Institut Universitaire de France (2005-2010)
- 1995-2002, Chargé de recherche au CNRS
- 2001, Habilitation, Université de Lyon
- 1994, Phd in statistical physics, Lyon (advisor: JP Hansen)
- 1989-1993: studies at Ecole Normale Supérieure (Paris)

Research activities in a few lines

My research interests are at the interface between various domains: "condensed matter", "fluid dynamics", "nano-science", as well as "everyday life science". They are mainly curiosity-driven. I combine experiments, theory, and molecular simulations to explore the intimate mechanisms of the dynamics of condensed matter from the macroscopic down to the molecular level.

One of my main thrust over the last 10 years is *nanofluidics, the science of molecular flows*. This world of the infinitely small in fluidics is the frontier where the continuum of fluid mechanics meets the atomic nature of matter, and even its quantum nature. There, we observe frictionless flows, emerging quantum effects, and memory effects, which now make it possible to dream of ionic computers.

Recently, we unveiled and rationalized quantum friction effects, explaining for the first time the odd and nearly frictionless flows in carbon nanochannels. This opens the possibility to design a quantum engineering of water flows, as a new asset for future water technologies. A second objective is to design and fabricate artificial "*nanoscale ionic machines*" based on emerging properties and capable to reproduce the amazing functionalities of biological systems. Such artificial nanofluidic building blocks mimic their neuronal counterparts and allow designing simple computation architectures based on ions rather than electrons, showing elementary 'learning' functionality using the nanofluidic circuitry.

Nanofluidics is also a field where there is a short path between fundamental science and disruptive innovation, because the sometimes 'exotic' nanofluidic properties offer unexpected solutions for multiple applications, notably for desalination, water remediation, or blue energy - notably osmotic energy. Our goal is to *"make it work"*. This fundamental research led to the creation of three start-up companies on these topics, "Sweetch-Energy", "Hummink" and "Altr".

I have also a strong interest in the physics of everyday life, with contributions on stone-skipping, cooking, splashes, ironing, teapot effect, and currently on ski waxing, etc.

Publications, conferences, …

- *190+ publications* in international reviews [incl. 8 Nature, 1 Science, 18 Nature daughter journals, etc. ; *H-index* : 76; 22k+ citations (Goggle Scholar)]
- ten patents, 5 licensed
- 120+ invited conferences (mostly international)
- 100+ seminars (Cambridge, Harvard, MIT, NYU, …)
- author of two first grade books, on mechanics and thermodynamics (Dunod éditeur)

Selected publications

Full list, see: https://www.phys.ens.fr/~lbocquet/publication.html

- "*Fluctuation-induced quantum friction in nanoscale water flows*", N. Kavokine, M.-L. Bocquet and L. Bocquet, **Nature** (2022); DOI: 10.1038/s41586-021-04284-7
- « *Modeling of emergent memory and voltage spiking in ionic transport through angström-scale slits* », P. Robin, N. Kavokine, and L. Bocquet, in **Science 373**, 687–691 (2021).
- « *Nanorheology of interfacial water during ice gliding* », L. Canale, J. Comtet, A. Nigues, C. Cohen, C. Clanet, A. Siria and L. Bocquet, **Physical Review X 9**, 041025 (2019).
- « *Massive radius-dependent flow slippage in single carbon nanotubes* », E. Secchi, S. Marbach, A. Niguès, D. Stein, A. Siria and L. Bocquet, **Nature 537** 210 (2016)
- « *Giant osmotic energy conversion measured in a single transmembrane boron-nitride nanotube* », A. Siria, P. Poncharal, A.-L. Biance, R. Fulcrand, X. Blase, S. Purcell, and L. Bocquet, **Nature 494** 455 (2013)
- « *The revealed secrets of stone skipping* », Christophe Clanet, Fabien Hersen, Lydéric Bocquet **Nature 427** 29 (2004)

Industrial relationships, transfer of technology and innovation

I served for 15 years as scientific consultant for various industrial groups, Rhodia, Blue Star Silicon, Saint Gobain, and various smaller size companies.

I am co-founder of several startup companies.
- The start-up company **Sweetch-Energy** was founded in 2016 and finalized two rounds of fund-raising since the beginning of its activity in 2017. It targets the development of innovative membranes for the field of blue energy and desalination. Its activity was seeded by the fundamental work on BN nanotubes [Siria et al., Nature2013], and subsequent (patented but unpublished) works with alternative materials for scalability. In 2021, Sweetch broke the 'glass ceiling' of blue energy and finalized a second round of fund-raising. It is now developing the industrialization of the process, with energy partners.
- The start-up **Hummink** was founded in 2020 and supported by the Elaia VC. It develops a novel nanoscale printing technology, building on the original tuning-fork AFM tools designed in our team. It literally allows writing at the nanoscale and on large areas, and without a cleanroom.
- The start-up **Altr** was also founded in 2020 with american partners to propose groundbreaking solution for alcohol filtration using the graphene-based membranes developed in the team.
- **UPI** was founded in 2021 and develops new types of atomic scale force microscope based on new designs of tuning forks.

Institutional responsabilities

2018 - …, member of the scientific council of CNRS
2016-2021, director of the *Institut Pierre Gilles de Gennes* for micro & nanofluidics, Paris (www.institut-pgg.fr) (2016-2018 deputy director)
2015 - 2019 director of the ENS Master Studies in Fundamental Physics (ICFP), ~150 students.
2006 - 2013, head of the "*Liquids at interfaces*" group in the LPMCN (~ 45 people), Univ. Lyon 1
2010 - 2012, deputy director of the LPMCN lab (100 people), Univ. Lyon 1
2010 – 2014, member of the scientific committee of the *Institut de Physique* of the CNRS

Commissions of trust

2020 - …, associate editor of the review *Flow* (Cambridge University Press)
2016 - …, member of the ERC PE03 panel
2011 - 2021, member of the editorial board of *Physical Review X* (American Physical Society)
2015 – 2017, member of the editorial board of *Journal of Chemical Physics* (AIP)
2008 – 2012, member of the CNRS national comitee (CoNRS) for condensed matter (sec. 05)

Awards

- 2022-2023 Professor chair at Collège de France, Chaire d'innovation technologique L. Bettancourt
- 2022 Gentner-Kastler prize, jointly awarded by the german Deutsche Physikalische Gesellschaft and the french Société Française de Physique

- *ERC Avdanced Grant* award of the European Research Council (2018) – project *Shadoks* -
- Hinshelwood lecture, Oxford University (2018)
- Silver Medal of the CNRS (2017)
- Maurice Couette Award of the Groupe français de Rhéologie (2015)
- Chair of excellence PSL* (2014)
- Ancell condensed matter prize de la Société Française de Physique (2011)
- *ERC Avdanced Grant* award of the European Research Council (2010) – project *Micromégas* -
- Scientific prize of the french Academy of Sciences, Jean Protas (2008)
- International award, *Friedrich Wilhelm Bessel* of the Alexander von Humboldt foundation (2007)
- 'palmes académiques' award (national award for accomplishments towards education, 2007)
- awarded member of the Institut Universitaire de France (2005)
- Young Researcher award of the city of Lyon (2003)
- NATO awarded grant (1996)
- Invited professor : Frei Universität Berlin, 6 months (2019,2021); MIT, USA, 1 year (2013-2014) ; Technical University Munich, Allemagne, 1 year (2007-2008); University of Barcelona, Spain 2 months (2002, 2003); UPENN, USA, 7 months (2000) ; Imperial College, UK 7 months (1996-1997)

Mentor and Teaching activities

Overall I supervised 25 Phd Students and 25 Postdocs, as well as many undergrads. Among them ~ 2/3 were experimentalists, 1/3 theoreticians. In the team, they are confronted to a combined experimental/theory training, on a broad variety of topics (statistical physics, colloid science, particle tracking, AFM measurements, micro and nanofluidics, friction, molecular dynamics simulations, etc.).

I have taught without any discontinuity since my Phd. I have been *full professor* over the period 2002-2013 at the University Claude Bernard Lyon 1, with a full teaching duty (and an average of ~ 100h of teaching per year over the 12 years). This covered all levels and topics of physics and material science, from the 1st year of Bachelor level up to Master and Doctorate studies. This was spread in full lectures, as well as small classes and lab work (travaux pratiques).

Since 2014 I have a joint professorship position at ENS Paris (64h/year). I teach courses on statistical physics, soft matter, micro and nanofluidics, membrane science, ... mostly at the batchelor and master level.

Major Collaborations

Alessandro Siria, experimental nanofluidics and AFM, laboratory of Physics, ENS Paris, France
Marie-Laure Bocquet, quantum simulations of 2D materials, Department of chemistry, ENS Paris, France
Nikita Kavokine, theoretical and experimental nanofluidics, CCQ Flatiron Institute, New York
Roland Netz, theory and simulations of nanoscale transport, Frei Universität, Berlin, Germany
Benoit Coasne, theory and simulation, interfacial properties, CNRS, Université Grenoble Alpes, France
Christophe Clanet, physics of sports, Ecole Polytechnique, France
Andre Geim, 2D nanofluidics, University of Manchester, UK
Radha Boya, 2D nanofluidics, University of Manchester, UK

Invitations to international conferences

Selection of recent invited conferences and colloquium

- American Physical Society, March Meeting, 2021
- Colloquium @ MIT, CENT, Boston, 2020
- International Soft Matter Conference, Edinburgh (plenary talk) 2019
- 12th European Fluid Mechanics Conference, Vienna, (plenary talk) 2018
- Edwards Symposium: Challenges and Opportunities in Soft Matter, Cambridge, 2017
- 26th IUPAP International Conference on Statistical Physics, *STATPHYS* 26, 2016
- Italian National Conference on Condensed Matter Physics *FisMat2015,* Palerme, 2017
- AERC International Conference, Nantes (plenary talk), 2015
- 9th Liquid Matter conference, Lisbon (plenary talk), 2014

Organization of conferences and workshops (selected)

- New frontiers in Liquid matter, international conference, Paris, July 2022, co-chair with B. Rotenberg, E. Trizac, G. Kahl, (~200 participants)
- *Flow 17*, international conference on micro and nanofluidics, Paris, July 2017, co-chair with P. Tabeling and J.-L. Viovy (~400 participants)
- Statphys 16 Satellite conference on "*Out of equilibrium and active soft matter*", Roscoff, June 2016, co-chaired with D. Bartolo, C. Cottin-Bizonne, L. Cipelleti, L. Berthier (~80 participants)
- CECAM workshop, "*Nanofluidics in physics and biology*", Lausanne, October 27-29, 2014 (~60 participants)
- Les Houches summer school "*Soft Interfaces*', 1 month school, July 2-27 2012, co-chaired with David Quéré and Thomas Witten (~80 participants)
- Symposium « *Fluid dynamics at super-repellent surfaces* », 62th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Minneapolis (Nov. 2009) (~50 participants)

List of publications - Lydéric Bocquet

https://www.phys.ens.fr/~lbocquet/publication.html

Articles

http://www.researcherid.com/rid/A-2241-2012
https://scholar.google.fr/citations?user=_TOxI8oAAAAJ&hl=fr

submitted:

« *Long-term memory and synapse-like dynamics in two-dimensional nanochannels* », P. Robin, T. Emmerich, A. Ismail, A. Niguès, Y. You, G.-H. Nam, A. Keerthi, A. Siria, A.K. Geim, B. Radha, L. Bocquet (2022); ArXiv:2205.07653

« Interaction confinement and electronic screening in two-dimensional nanofluidic channels », N. Kavokine, P. Robin, L. Bocquet, submitted (2022)

« *Quantum feedback at the solid-liquid interface: flow-induced electronic current and negative friction* », B. Coquinot, L. Bocquet, N. Kavokine, submitted (2022); ArXiv:2205.03250

« *Strong electronic winds blowing under liquid flows on carbon surfaces* », A. Marcotte, M. Lizee, B. Coquinot, N. Kavokine, K. Sobnath, C. Barraud, A. Bhardwaj, B. Radha, A. Niguès, L. Bocquet, and A. Siria, submitted (2022); ArXiv:2205.05037

2022

[190] « *Wave drag in unsteady motion* », A. Dode, R. Carmigniani, C. Cohen, C. Clanet, L. Bocquet, accepted for publication in **J. Fluid Mech.** (2022)

[189] « *Fluctuation-induced quantum friction in nanoscale water flows* »,
N. Kavokine, M.-L. Bocquet and L. Bocquet,
Nature 602 84-90 (2022)

[188] « *Exalted nanofluidic transport in activated carbon nanoconduits* »,
T. Emmerich, V. Kalangi, A. Nigues, A. Keerthi, B. Radha, A. Siria, L. Bocquet,
Nature Materials (2022);

[187] « *Chemi-sorbed versus physi-sorbed surface charge and its impact on electrokinetic transport: carbon versus boron-nitride surface* », E. Mangaud, M.-L. Bocquet, L. Bocquet, and B. Rotenberg, **J. Chem. Phys.**, **156** , 044703 (2022).

2021

[186] « *Modeling of emergent memory and voltage spiking in ionic transport through angström-scale slits* »,
P. Robin, N. Kavokine, and L. Bocquet,
Science, **373**, 687–691 (2021).

[185] « *Wetting transition of ionic liquids at metal surfaces: A computational approach to electronic screening using a virtual Thomas-Fermi fluid* »,
A. Schlaich, D. Jin, L. Bocquet and B. Coasne,
Nature Materials (2021); https://doi.org/10.1038/s41563-021-01121-0

[184] « *Life on the osmotic slopes* »,
L. Bocquet and J. Palacci,
Nature Physics (2021)

[183] « *Fluids at nanoscales: from continuum to sub-continuum transport* »
N. Kavokine, R. Netz, L. Bocquet,
Annual Review of Fluid Mechanics 53, 377-410 (2021).

2020

[182] "*Mechanically activated ionic transport across single digit carbon nanotubes*",
A. Marcotte, T. Mouterde, A. Nigues, A. Siria and L. Bocquet,
Nature Materials 19, 1057–1061 (2020).

[181] "*Numerical analysis of polymer diffusiophoresis by means of the molecular dynamics*",
S. Ramirez-Hinestrosa, H. Yoshida, L. Bocquet, D. Frenkel,
J. Chem. Phys., **152**, 164901 (2020).

[180] "*Nanofluidics coming of age*",
L. Bocquet,
Nature Materials, **19**, 254-256(2020).

[179] "*Local and global force balance for diffusiophoretic transport*",
S. Marbach, H. Yoshida and L. Bocquet,
J. Fluid Mech., **892**, A6 (2020).

[178] "*Nanotribology of ionic liquids: Transition to yielding response in nanometric confinement with metallic surfaces*",
A. Laine, A. Nigues, L. Bocquet and A. Siria,
Physical Review X, **10**, 011068 (2020).

[177] "*Resonant osmosis across active switchable membranes*",
S. Marbach, N. Kavokine, L. Bocquet,
J. Chem. Phys , **152**, 054704 (2020).

[176] "*Ultrafast photomechanical transduction through thermophoretic implosion*",
N. Kavokine, S. Zou, R. Liu, H. Zhong, A. Nigues, B. Zou and L. Bocquet,
Nature Communications 11, 50 (2020).

2019

[175] "*Nanorheology of interfacial water during ice gliding*",
L. Canale, J. Comtet, A. Nigues, C. Cohen, C. Clanet, A. Siria and L. Bocquet,
Physical Review X 9, 041025 (2019).

[174] "*Adsorption kinetics in open nanopores as a source of low frequency noise*",
S. Gravelle, R.R. Netz and L. Bocquet,
NanoLetters 19, 10, 7265-7272 (2019).

[173] "*Entrance Effects in Concentration-Gradient-Driven Flow Through an Ultrathin Porous Membrane*",
D.J. Rankin, L. Bocquet, D.M. Huang,
Journal of Chemical Physics 151, 044705 (2019).

[172] «*Osmosis, from molecular insights to large scale applications*»,
S. Marbach and L. Bocquet,
Chemical Society Reviews 48, 3102-3144 (2019).

[171] «*Ionic Coulomb blockade as a fractional Wien effect* »
N. Kavokin, S. Marbach, A. Siria, L. Bocquet,
Nature Nanotechnology 14, 573–578 (2019).

[170] « *Atomic rheology of gold nanojunctions* »
J. Comtet, A. Lainé, A. Niguès, L. Bocquet, A. Siria,
Nature 569, 393–397 (2019).

[169] «*Molecular streaming and its voltage-gated response in Angström scale channels*»
T. Mouterde, A. Keerthi, A. Poggioli, S. Dar, A. Siria, A.K. Geim, L Bocquet and R. Boya,
Nature 567, 87 (2019).

[168] «*MicroMegascope based dynamic Surface Force Apparatus*»
A. Lainé, L. Jubin, L. Canale, L. Bocquet, A. Siria, S. Donaldson, A. Niguès,
Nanotechnology 30, 195502 (2019).

[167] «*Beyond the Trade-Off: Dynamic Selectivity in Ionic Transport and Current Rectification*»
A. Poggioli, A. Siria, L. Bocquet,
J. Phys. Chem. B 123, 1171–1185 (2019).

2018

[166] «*Interfacial transport with mobile surface charges and consequences for ionic transport in carbon nanotubes*»
T. Mouterde and L. Bocquet,
The European physical journal. E, 41, 148 (2018).

[165] «*Transport and dispersion across wiggling nano-pores*»
S. Marbach, D. Dean, L. Bocquet,
Nature Physics 14, 1108-1113 (2018).

[164] «*MicroMegascope*»
L. Canale, A. Laborieux, A. Aroul Mogane, L. Jubin, J. Comtet, A. Lainé, L. Bocquet, A. Siria, A. Niguès,
Nanotechnology 29 355501 (2018).

[163] «*Dripplon: localized and super fast ripples of water confined between graphene sheets*»
H. Yoshida, V. Kaiser, B. Rotenberg, and L. Bocquet,
Nature Com. 9 1496 (2017).

[162] «*Dramatic pressure-sensitive ion conduction in conical nanopores*»
L. Jubin, A. Poggioli, A. Siria and L. Bocquet,
Proc. Nat. Acad. Sci USA 115 4063-4068 (2018).

[161] «*Cross-over of the power law exponent for carbon nanotube conductivity as a function of salinity*»
Y. Uematsu, R. Netz, L. Bocquet and D. Bonthuis,
J. Phys. Chem. B 22, 2992−2997 (2018).

[160]«*Shear thinning in non-Brownian suspensions*»
G. Chatté, J. Comtet, A. Niguès, L. Bocquet, A. Siria, G. Ducouret, F. Lequeux, N. Lenoir, G. Ovarlez and A. Colin
Soft Matter, 14 879-893 (2018).

2017

[159] «*New avenues for the large scale harvesting of blue energy*»
A. Siria, M.-L. Bocquet and L. Bocquet,
Nature Reviews Chemistry 1 0091 (2017).

[158] «*Active sieving across driven nanopores for tunable selectivity*»
S. Marbach and L. Bocquet,
Journal of Chemical Physics 147 154701 (2017).

[157] « *The Landau-Squire plume* »
E. Secchi, S. Marbach, A. Niguès, A. Siria and L. Bocquet,
J. Fluid Mech. 826 R3 (2017).

[156] « *Linking Rheology and Printability for Dense and Strong Ceramics by Direct Ink Writing* »
A. M'Barki, L. Bocquet, A. Stevenson,
Scientific Reports 7, 6017 (2017) (2017).

[155] « *Flows in one-dimensional and two-dimensional carbon nanochannels: Fast and curious*»
M. Majumder, A. Siria, L. Bocquet,
MRS Bulletin, **42**, 278-282, April 2017.

[154] « *Osmotic and diffusio-osmotic flow generation at high solute concentration. I. Mechanical approaches* »
S. Marbach, H. Yoshida, L. Bocquet,
Journal of Chemical Physics 146 194701(2017).

[153] « *Osmotic and diffusio-osmotic flow generation at high solute concentration. II. Molecular dynamics simulations* »
H. Yoshida, S. Marbach, L. Bocquet,
Journal of Chemical Physics 146 194702 (2017).

[152] «*Pairwise frictional profile between particles determines discontinuous shear thickening transition in non-colloidal suspensions*»,
J. Comtet, G. Chatté, Antoine Niguès, L. Bocquet, A. Siria, and A. Colin,
Nature Communication 8 15633 (2017).

[151] *« Nanoscale capillary freezing of ionic liquids confined between metallic interfaces and the role of electronic screening»,*
J. Comtet, A. Niguès, V. Kaiser, B. Coasne, L. Bocquet and A. Siria,
Nature Materials, 16 634-639 (2017).

[150] *«Electrostatic interactions between ions near Thomas-Fermi substrates and the surface energy of ionic crystals at imperfect metals»,*
V. Kaiser, J. Comtet, A. Niguès, A. Siria, B. Coasne, L. Bocquet,
Faraday Discussions 199, 129-158 (2017).

2016

[149] *« Origins of Negative Gas Adsorption»,*
J. Evans, L. Bocquet and F.X. Coudert,
Chem, 1 873-886 (2016).

[148] *«Chemisorption of Hydroxide on 2D Materials from DFT Calculations: Graphene Versus Hexagonal Boron Nitride»,*
B. Grosjean, C. Péan, A. Siria, L. Bocquet, R. Vuilleumier, M.-L. Bocquet
Journal of Physical Chemistry Letters 7, 4695-4700 (2016).

[147] *«Carbon membranes for efficient water-ethanol separation»,*
S. Gravelle, H. Yoshida, L. Joly, C. Ybert, L. Bocquet,
Journal of Chemical Physics 145 124708 (2016).

[146] «*Massive radius-dependent flow slippage in single carbon nanotubes* »,
E. Secchi, S. Marbach, A. Niguès, D. Stein, A. Siria and L. Bocquet,

Nature 537 210 (2016).

[145] «*Principle of active osmotic exchanger for advanced nanofiltration inspired by the kidney* »,
S. Marbach and L. Bocquet,
Physical Review X 6, 031008 (2016).

[144] «*Destabilization of a flow focused suspension of magnetotactic bacteria*»,
N. Waisbord, C. Lefevre, L. Bocquet, C. Ybert, C. Cottin,
Physical Review Fluids 1 053203 (2016).

[143] H. Yoshida and L. Bocquet,
« *Labyrinthine water flows across multilayer graphene-based membranes: molecular dynamics versus continuum predictions*»,
Journal of Chemical Physics 144 234701 (2016).

[142] T. Lee, L. Bocquet, B. Coasne
« Activated desorption at heterogeneous interfaces and long-time kinetics of hydrocarbon recovery from nanoporous media »,
Nature Communications 7, 11890 (2016).

[141] JF. Rupprecht, N Waisbord, C. Cottin, C. Ybert, L. Bocquet
« Velocity condensation for magnetotactic bacteria »,
Physical Review Letters 116 168101 (2016).

[140] E. Secchi, A. Niguès, L. Jubin, A. Siria, L. Bocquet
« Scaling behavior for ionic transport and its fluctuations in individual carbon nanotube »,
Physical Review Letters 116 154501 (2016).

[139] S. Gravelle, C. Ybert, L. Bocquet, L. Joly
Anomalous capillary filling and wettability reversal in nanochannels
Physical Review E 93 033123 (2016).

2015

[138] L. Bocquet and R. Netz,
« Nanofluidics: Phonon modes for faster flow »,
Nature Nanotechnology 10 657 (2015).

[137] K. Falk, B. Coasne, R. Pellenq, F. Ulm and L. Bocquet,
« Subcontinuum mass transport of condensed hydrocarbons in nanoporous media »,
Nature Communications 6, 6949 (2015)

[136] A. Gadaleta, A. Siria, A.-L. Biance, L. Bocquet
« *Ultra-sensitive flow measurement in individual nanopores through pressure-driven particle translocation* »,
Nanoscale 7 7965 (2015).

[135] F. Ginot, I. Theurkauff, D. Levis, C. Ybert, L. Bocquet, L. Berthier, C. Cottin
« *Non-equilibrium equation of state in suspensions of ative colloids* »,
Physical Review X 5 011004 (2015).

[134] « *Perméabilité optimale des aquaporines, une histoire de forme ?* »,
S. Gravelle, L. Joly, F. Detcheverry, C. Ybert, C. Cottin and L. Bocquet,
Medecine/Sciences 31 174 (2015).

[133] « *From Paris to Lyon, and from simple to complex liquids: a view on Jean-Pierre Hansen's contribution* »,
J.-L. Barrat, T. Biben and L. Bocquet,
Molecular Physics 113 2378 (2015).

2014

[131] L. Bocquet and P. Tabeling,
«*Physics and technological aspects of nanofluidics*»,
Lab on a Chip, **14** 3143-3158 (2014).

[130] C. Lee, C. Cottin, A.-L. Biance, P. Joseph, L. Bocquet, and C. Ybert
« *Osmotic flows through fully permeable nano-channels*»,
Physical Review Letters 112, 244501 (2014).

[129] S. Gravelle, L Joly, C. Ybert and L. Bocquet,
« Large permeabilities of hourglass nanopores: from hydrodynamics to single file transport»,
J. Chem. Phys. 141 18C526 (2014).

[128] A. Niguès, A. Siria, P. Vincent, P. Poncharal and L. Bocquet,
« *Ultra-high interlayer friction inside Boron-Nitride nanotubes*»,
Nature Materials 13 688-693 (2014).

[127] L. Bocquet
« *Bubbles as osmotic membranes*»,
Nature Nanotechnology, **9**, 249-251 (2014).

[126] J. Deseigne, C. Cottin-Bizonne, A.D. Stroock, L. Bocquet, C. Ybert,
« *How a "pinch of salt" can tune chaotic mixing of colloidal suspensions*»,
Soft Matter 10 4795-4799 (2014).

[125] A. Nicolas, K. Martens, L. Bocquet, and J.-L. Barrat,
« *Universal and non-universal features in coarse-grained models of flow in disordered solids*»,
Soft Matter 10, 4648-4661 (2014).

[124] V. Mansard, L. Bocquet and A. Colin,
« *Boundary conditions for soft glassy flows: slippage and surface fluidization*»,
Soft Matter 10 6984-6989 (2014).

[123] A. Gadaleta, C. Sempere, S. Gravelle, A. Siria, R. Fulcrand, C. Ybert, and L. Bocquet
« *Sub-additive ionic transport across arrays of solid-state nanopores*»,
Physics of Fluids, **26**, 012005 (2014).

2013

[122] C. Picallo, S. Gravelle, L. Joly, E. Charlaix, L. Bocquet
« *Nanofluidic osmotic diodes : theory and molecular dynamics results »*
Physical Review Letters 111 244501 (2013).

[121] S. Gravelle, L. Joly, C. Ybert, C. Cottin, L. Bocquet,
« *Optimizing water permeability through the hourglass shape of aquaporins* »,
Proc. Nat. Acad. Sci. USA 110 16367 (2013).

[120] L. Bocquet, J.-L. Barrat
« *On the Green-Kubo relationship for the liquid-solid friction coefficient* »,
Journal of Chemical Physics 139 044704 (2013).

[119] F. Detcheverry, L. Bocquet,
« *Thermal fluctuations of hydrodynamic flows in nanochannels* »,
Physical Review E 88 012106 (2013).

[118] A. Siria, P. Poncharal, A.-L. Biance, R. Fulcrand, X. Blase, S. Purcell, L. Bocquet,
« *Giant osmotic energy conversion measured in a single transmembrane boron-nitride nanotube* »,
Nature 494 455-458 (2013).

[117] V. Mansard, A. Colin, P. Chaudhuri, L. Bocquet,
« *A molecular dynamics study of non-local effects in the flow of soft jammed materials*»,
Soft Matter 9 7489-7500 (2013).

[116] B. Géraud, L. Bocquet, C. Barentin,
« *Confined flows of a polymer microgel* »,
Eur. Phys. J. E, **36**, 30 (2013).

[115] O. Bonhomme, O. Liot, A.-L. Biance, L. Bocquet
« *Soft nanofluidics transport in a soap film* »,
Physical Review Letters 110 054102 (2013).

2012

[114] A. Colin, T. Squires, L. Bocquet
« *Soft matter principles of microfluidics*», editorial for themed issue
Soft Matter 8 10527-10529 (2012).

[113] K. Falk, F. Sedlmeier, L. Joly, R. R. Netz and L. Bocquet,
« *Ultra-low liquid/solid friction in carbon nanotubes: comprehensive theory for alcohols, alkanes, OMCTS and water*»,
Langmuir 28 14261-14272 (2012).

[112] K. Martens, L. Angelani, R. di Leonardo, L. Bocquet,
«*Probability distributions for the run-and-tumble bacterial dynamics: an analogy to the Lorentz model*»
European Physical Journal E 35 84 (2012).

[111] C.Y. Lee, L. Joly, A. Siria, A.-L. Biance, R. Fulcrand, L. Bocquet,
« *Large apparent electric size of solid-state nanopores due to spatially extended surface conduction* »,
NanoLetters 12 4037-4044 (2012).

[110] P. Chaudhuri, V. Mansard, A. Colin and L. Bocquet,
« *Dynamical flow arrest in confined gravity driven flows of soft jammed particles* »,
Physical Review Letters 109 036001 (2012).

[109] F. Detcheverry and L. Bocquet,
« *Hydrodynamic fluctuations in nanopores* »,
Physical Review Letters 109, 024501 (2012).

[108] I. Theurkoff, C. Cottin-Bizonne, J. Palacci, C. Ybert, L. Bocquet,
« *Dynamic clustering in active colloidal suspensions with chemical signaling* »,
Physical Review Letters 108, 268303 (2012).

[107] P. Jop, V. Mansard, P. Chaudhuri, L. Bocquet, and A. Colin,
« *Microscale rheology of a jammed material close to yielding* »,
Physical Review Letters 108, 148301 (2012).

[106] P. Chaudhuri, L. Berthier, and L. Bocquet,
« *Inhomogeneous shear flows in soft jammed materials with tunable attractive forces* »,
Physical Review E 85 021503 (2012).

[105] A. Benusiglio, V. Mansard, A.-L. Biance and L. Bocquet,
« *The anatomy of a crease: from folding to ironing* »,
Soft Matter 8 3342 (2012).

[104] O.I. Vinogradova, L. Bocquet, A. N. Bogdanov, R. Tsekov, V. Lobaskin,

« *Electrostatic interaction of neutral semipermeable membranes* »,
Journal of Chemical Physics 136, 034902 (2012).

[103] C. Cottin-Bizonne, C. Barentin, L. Bocquet,
« *Scaling laws for slippage on superhydrophobic fractal surfaces*»,
Physics of Fluids 24, 012001 (2012).

[102] K. Martens, L. Bocquet, and J.-L. Barrat,
« *Spontaneous formation of permanent shear bands in a mesoscopic model of flowing disordered matter*»,
Soft Matter, **8** 4197-4205 (2012).

[101] A. Siria, A.-L. Biance, C. Ybert, L. Bocquet,
« *A flux monitoring method for easy and accurate flow rate measurement in pressure driven flows*»,
Lab on a Chip 12, 872 (2012).

[100] J. Palacci, C. Cottin-Bizonne, C. Ybert, L. Bocquet,
« *Osmotic traps for colloids and macromolecules based on logarithmic sensing in salt taxis*»,
Soft Matter 8 980 (2012).

2011

[99] L. Bocquet, E. Lauga,
« *A smooth future for super-repellent materials ?* »,
Nature Materials 10 334-337 (2011).

[98] V. Mansard, P. Chaudhuri, L. Bocquet, A. Colin
«*A kinetic elasto plastic model exhibiting viscosity bifurcation in soft glassy materials*»,
Soft Matter 7 5524-5527 (2011).

[97] D. J. Bonthuis, K. Falk, C. N. Kaplan, D. Horinek, A. N. Berker, L. Bocquet, and R. R. Netz,
« *Theory and simulations of water flows through carbon nanotubes :prospects and pitfalls*»,
Journal of Physics : condensed matter 23 184110 (2011).

[96] K. Martens, L. Bocquet and J.-L. Barrat ,
« *Connecting diffusion and dynamical heterogeneities in actively deformed amorphous systems*»,
Physical Review Letters 106 156001 (2011).

2010

[95] D. J. Bonthuis, K. Falk, C. N. Kaplan, D. Horinek, A. N. Berker, L. Bocquet, and R. R. Netz,
« *Comment on "Pumping of Confined Water in Carbon Nanotubes by Rotation-Translation Coupling"*»,
Physical Review Letters 105, 209401 (2010).

[94] K. Falk, F. Sedlmeier, L. Joly, R. R. Netz and L. Bocquet
« *Molecular origin of fast water transport in carbon nanotube membranes*»,
NanoLetters 10 4067 (2010).

[93] J. Palacci, C. Cottin-Bizonne, C. Ybert, L. Bocquet
« *Sedimentation and effective temperature of active colloidal suspensions*»,
Physical Review Letters 105 088304 (2010).

[92] D.J. Bonthuis, D. Horinek, L. Bocquet, and R. R. Netz,
« *Electrokinetics at Aqueous Interfaces without Mobile Charges*»,
Langmuir 26 12614 (2010).

[91] J. Palacci, B. Abecassis, C. Cottin-Bizonne, C. Ybert, L. Bocquet ,
« *Colloidal motility and pattern formation under rectified diffusiophoresis* »,
Physical Review Letters 104, 138302 (2010).

[90] J. Goyon, A. Colin, L. Bocquet,
« *How does a soft glassy material flow: finite size effects, non-local rheology and flow cooperativity* »,
Soft Matter 6 2668 (2010).

[89] C. Duez, C. Ybert, C. Clanet, L. Bocquet,

« *Wetting controls separation of inertial flows from solid surfaces* »,
Physical Review Letters 104 084503 (2010).

[88] L. Bocquet , E. Charlaix,
« *Nanofluidics, from bulk to interfaces*»,
Chemical Society Reviews 39, 1073–1095 (2010). [invited review]

2009

[87] D. J. Bonthuis, D. Horinek, L. Bocquet, R. Netz,
« *Electro-Hydraulic Power Conversion in Planar Nano-Channels*»,
Physical Review Letters 103, 144503 (2009).

[86] L. Petit, C. Barentin, J. Colombani, C. Ybert, L. Bocquet,
« *Probe size influence on diffusion in a Laponite colloidal glass*»,
Langmuir 25 12048 (2009).

[85] L. Bocquet, A. Colin, A. Ajdari,
« *A kinetic theory of plastic flow in soft glassy materials*»,
Physical Review Letters 103 036001 (2009).

[84] C. Sendner, D. Horinek, L. Bocquet, R. Netz,
« *Interfacial water at hydrophobic and hydrophilic surfaces: slip, viscosity and diffusion* »,
Langmuir 25 10768 (2009).

[83] B. Abecassis, C. Cottin-Bizonne, C. Ybert, A. Ajdari, L. Bocquet,
« *Osmotic manipulation of particles for microfluidic applications*»,
New Journal of Physics 11 075022 (2009). [invited paper]

2008

[82] D. Huang, C. Sendner, D. Horinek, R. Netz, L. Bocquet
« *Water slippage versus contact angle: a quasi-universal relationship* »,
Physical Review Letters 101 226101(2008).

[81] F. Sedlmeier, J. Janecek, C. Sendner, L. Bocquet, R. Netz and D. Horinek,
« *Water at polar and non polar solid walls (Review)* »,
Biointerphases 3 FC23 (2008).

[80] C. Bouzigues, P. Tabeling, L. Bocquet,
« *Nanofluidics in the Debye layer at hydophilic and hydrophobic surfaces* »,
Physical Review Letters 101 114503 (2008).

[79] D. Huang, C. Cottin-Bizonne, C. Ybert, L. Bocquet,
« *Massive amplification of surface-induced transport at superhydrophobic surfaces* »,
Physical Review Letters 101 064503 (2008).

[78] B. Abecassis, C. Cottin-Bizonne, C. Ybert, A. Ajdari, L. Bocquet,
« *Boosting migration of larges particles by solute contrast*»,
Nature Materials 7 785 (2008).

[77] J. Goyon, A. Colin, G. Ovarlez, A. Ajdari, L. Bocquet,
« *Spatial cooperativity in soft glassy flows*»,
Nature 454, Issue: 7200, 84-87 (2008).

[76] Laurent Joly, Christophe Ybert, Lydéric Bocquet,
« *Nanohydrodynamics at liquid-solid interfaces: experimental characterization without external forcing* »,
La Houille Blanche 1 83-90 (2008).

[75] C Bouzigues, L. Bocquet, E. Charlaix, C. Cottin-Bizonne, B. Cross, L. Joly, A. Steinberger, C. Ybert, P. Tabeling,
« *Using surface force apparatus, diffusion and velocimetry to measure slip lengths*»,

Philosophical transactions of the Royal Society: A 366 1455-1468 (2008).

[74] D. Huang, C. Cottin-Bizonne, C. Ybert, L. Bocquet,
«*Aqueous electrolytes near hydrophobic surfaces: Dynamic effects of ion specificity and hydrodynamic slip* »
Langmuir 24 1442-1450 (2008).

[73] C. Duez, C. Ybert, C. Cottin-Bizonne, C. Barentin, L. Bocquet,
« *Dynamics of Fakir liquids: from slip to splash* »,
Journal of Adhesion Science and Technology 22 335-351 (2008).

2007

[72] C. Ybert, C. Barentin, C. Cottin-Bizonne, P. Joseph, L. Bocquet,
« *Achieving large slip with superhydrophobic surfaces: Scaling laws for generic geometries*»,
Physics of Fluids 19, 123601 (2007).

[71] N. Lyotard, W. Shew, L. Bocquet, J.F. Pinton,
« *Polymer and surface roughness effects on the drag crisis of falling spheres*»,
European Physical Journal B, **60** 469-476 (2007).

[70] V. Duclaux, F. Caillé, C. Duez, C. Ybert, L. Bocquet, C. Clanet,
« *Dynamics of transient cavities* »,
Journal of Fluid Mechanics 591 1-19 (2007).

[69] D. Huang, C. Cottin-Bizonne, C. Ybert, L. Bocquet,
« *Ion specificity and anomalous electrokinetics in hydrophobic nanochanels* »,
Physical Review Letters 98 177801 (2007).

[68] L. Bocquet, J.-L. Barrat,
« *Flow boundary conditions : from nano- to micro- scales*»,
Soft Matter 3 (6): 685-693 (2007).

[67] C. Duez, C. Ybert, C. Clanet, L. Bocquet,
« *Making a splash with water repellency*»,
Nature Physics 3, 180-183 (2007).

[66] L. Bocquet,
« *Tasting edge effects* »,
American Journal of Physics 75 148-150 (2007).

2006

[65] L. Joly, C. Ybert, E.Trizac, L. Bocquet,
« *Liquid friction at charged surfaces : from hydrodynamic slippage to electrokinetics* »,
Journal of Chemical Physics 125 Art. No. 204716 (2006).

[64] P. Joseph, C. Cottin, J.-M. Benoit, C. Ybert, C. Journet, P. Tabeling, L. Bocquet,
« *Slippage of water past superhydrophobic carbon nanotube carpets in microchanels* »,
Physical Review Letters 97 156104 (2006).

[63] L. Bocquet, P. Tabeling and S. Manneville,
« *Comment on 'Large Slip of Aqueous Liquid Flow over a Nanoengineered Super-hydrophobic Surface' by Choi and Kim* »,
Physical Review Letters 97 109601 (2006).

[62] L. Joly, C. Ybert, E.Trizac, L. Bocquet,
« *Electrokinetic effects on slipping surfaces* »,
La Houille Blanche (1): 53-58 (2006).

[61] A. Ajdari, L. Bocquet,
« *Giant amplification of interfacially driven transport by hydrodynamic slip Diffusion-osmosis and beyond* »,
Physical Review Letters 96 186102 (2006).

[60] L. Bocquet, C. Clanet,

« *The mystery of the skipping stone* »,
Physics World, vol. Feb., 29-31 (2006).

[59] Laurent Joly, Christophe Ybert, Lydéric Bocquet, Emmanuel Trizac,
« *Effets électrocinétiques sur surfaces glissantes* »,
La Houille Blanche 1 53-58 (2006).

[58] L. Joly, C. Ybert, L. Bocquet,
« *Probing the nanohydrodynamics at liquid-solid interfaces using thermal motion* »,
Physical Review Letters 96 046191 (2006).

2005

[57] Lionel Roselini, Fabien Hersen, Christophe Clanet, Lydéric Bocquet,
« *Skipping stone* »,
Journal of Fluid Mechanics 543, 137-146 (2005).

[56] A. Saugey, L. Joly, C. Ybert, J.-L. Barrat, L. Bocquet,
« *Diffusion in pores and its dependence on boundary conditions* »,
Journal of Physics : Condensed Mattter 17 S4075 (2005).

[55] C. Journet, S. Moulinet, C. Ybert, S. Purcell, L. Bocquet,
« *Contact angle measurements on superhydrophobic Carbon Nanotube Forests: effect of fluid pressure* »,
Europhysics Letters 71 104 (2005).

[54] Anthony Saugey, Lydéric Bocquet, Jean-Louis Barrat,
« *Nucleation in hydrophobic cylindrical pores : a lattice model* »,
Journal of Physical Chemistry B 109 6520 (2005).

[53] G. Picard, A. Ajdari, F. Lequeux, L. Bocquet,
« *Slow flows of yield stress fluids : complex spatio-temporal behavior from a simple elasto-plastic model* »,
Physical Review E 71, 010501(R) (2005).

[52] D. Chapot, L. Bocquet, E. Trizac
« *Electrostatic potential around charged finite rodlike macromolecules : nonlinear Poisson-Boltzmann theory* »,
Journal of Colloid and Interface Science 285 609 (2005).

2004

[51] B. Lefevre, A. Saugey, J.L. Barrat, L. Bocquet, E. Charlaix, P.F. Gobin, G. Vigier,
« *Intrusion and extrusion of water in highly hydrophobic mesoporous materials : effect of the pore texture* »,
Colloids and Surfaces A 241 265 (2004).

[50] C. Cottin-Bizonne, C. Barentin, E. Charlaix, L. Bocquet, J.-L. Barrat,
« *Dynamics of simple liquids at heterogeneous surfaces : Molecular Dynamics simulations and hydrodynamic description* »,
European Physical Journal E 15 427 (2004).

[49] L. Joly, C. Ybert, E. Trizac, L. Bocquet,
« *Hydrodynamics within the electric double layer on slipping surfaces* »,
Physical Review Letters 93 257805 (2004).

[48] R. Agra, R. Trizac, L. Bocquet**,**
« *The interplay between screening properties and colloid anisotropy : towards a reliable pair potential for disc-like charged particles* »,
European Physical Journal E 15 345 (2004).

[47] G. Picard, A. Ajdari, F. Lequeux, L. Bocquet
« *Elastic consequences of a single plastic event : a step towards the microscopic modelling of the flow of yield stress fluids* »,
European Physical Journal E 15 371 (2004).

[46] F. Restgano, L. Bocquet, E. Charlaix,
« *Where does a cohesive heap break ?* »,

European Physical Journal E 14, 177-183 (2004).

[45] D. Chapot, L. Bocquet, E. Trizac,
« *Interaction between charged anisotropic macromolecules : application to rod-like polyelectrolytes* »,
Journal of Chemical Physics 120, 3969-3982 (2004).

[44] Benoît Lefevre, Anthony Saugey, Jean-Louis Barrat, Lydéric Bocquet, Elisabeth Charlaix, Pierre-François Gobin, Gérard Vigier,
« *Intrusion and extrusion of water in hydrophobic mesopores* »,
Journal of Chemical Physics 120 4927-4938 (2004).

[43] Fathollah Varnik, Lydéric Bocquet, Jean-Louis Barrat,
« *A study of the static yield stress in a binary Lennard-Jones glass* »,
Journal of Chemical. Physics 120, 2788-2801 (2004).

[42] Christophe Clanet, Fabien Hersen, Lydéric Bocquet,
« *The revealed secrets of stone skipping* »,
Nature 427 29 (2004).

2003

[41] Yan Levin, Emmanuel Trizac, Lydéric Bocquet,
« *On the fluid-fluid phase separation in charged-stabilized colloidal suspensions* »,
Journal of Physics : Condensed Matter 15, 3523 (2003).

[40] Lydéric Bocquet, Nicolas Witkowski,
« *L'art des ricochets* »
La Recherche (juin 2003).

[39] E. Trizac, L. Bocquet, M. Aubouy, HH von Gruenberg,
« *Alexander's prescription for colloidal charge renormalization* »,
Langmuir 19 4027-4033 (2003).

[38] Cécile Cottin-Bizonne, Jean-Louis Barrat, Lydéric Bocquet, Elisabeth Charlaix,
« *Low friction liquid flows at nanopatterned interfaces* »,
Nature Materials 2 238 (2003).

[37] Miguel Aubouy, Emmanuel Trizac, Lydéric Bocquet,
« *Effective charge versus bare charge : an analytical estimate for colloidal systems* »,
Journal of Physics A, 36, 5835-5840 (2003).

[36] Fathollah Varnik, Lydéric Bocquet, Jean-Louis Barrat, Ludovic Berthier,
« *Shear localization in a model glass* »,
Physical Review Letters 90, 095702 (2003).

[35] Emmanuel Trizac, Miguel Aubouy, Lydéric Bocquet,
« *Analytical estimate of effective charges at saturation in Poisson-Boltzmann cell models* »,
Journal of Physics : Condensed Matter 15, 291-296 (2003).

[34] Lydéric Bocquet,
« *The physics of stone skipping* »,
American Journal of Physics 17 (2), 150 (2003).

2002

[33] Guillemette Picard, Armand Ajdari, Lydéric Bocquet, François Lequeux,
« *A simple model for heterogeneous flows of yield stress fluids* »,
Physical Review E 66, 051501 (2002).

[32] Lydéric Bocquet, Emmanuel Trizac and Miguel Aubouy,
« *Effective Charge Saturation in colloidal suspensions* »,
Journal of Chemical Physics 117 (24), 8138-8152 (2002).

[31] Emmanuel Trizac, Lydéric Bocquet, Raphaël Agra, Jean-JacquesWeiss and Miguel Aubouy,
« Effective charges and phase behaviour of a model clay suspension in an electrolyte »,
Journal of Physics : Condensed Matter 14, 9339 (2002).

[30] Emmanuel Trizac, Lydéric Bocquet, Miguel Aubouy,
« *A simple prescription for charge renormalization in highly charged colloidal suspensions* »,
Physical Review Letters 89, 24830 (2002).

[29] Lydéric Bocquet, Jalal Errami, Tom C. Lubensky,
« *A Hydrodynamic model of a jammed-to-flowing transition in gravity driven granular materials* »,
Physical Review Letters 89, 184301 (2002).

[28] Lydéric Bocquet, Elisabeth Charlaix, Frédéric Restagno,
« *Physics of Humid Granular Materials* »,
Comptes Rendus de Physique, **3**, 207-215 (2002).

[27] Frédéric Restagno, Lydéric Bocquet, J. Crassous, Elisabeth Charlaix,
« *Slow kinetics of capillary condensation in confined geometry : experiment and theory* »,
Colloids and Surfaces A, **206**, 69-77 (2002).

[26] Lydéric Bocquet, Wolfgang Losert, David Shalk, Tom C. Lubensky, Jerry Gollub,
« *Granular Flow Dynamics and Forces : Experiment and Continuum Theory* »,
Physical Review E 65 011307 (2002).

2001

[25] Henk van Beijeren, Wei Dong and Lydéric Bocquet,
« *Diffusion-controlled reactions : a revisit of Noyes theory* »,
Journal of Chemical Physics 114, 6265-6275 (2001).

2000

[24] Wolfgang Losert, Lydéric Bocquet, Tom C. Lubensky, Jerry Gollub,
« *Particle dynamics in sheared granular media* »,
Physical Review Letters 85, 1428-1431 (2000).

[23] Yannick Alméras, Jean-Louis Barrat, Lydéric Bocquet,
« *Influence of Wetting Properties on Diffusion in a Confined Fluid* »,
Journal de Physique IV 10, 27 (2000).

[22] Robert Holyst, M. Blazejczyk, K. Burdzy, G. Goralski, L. Bocquet,
« *Reduction of dimensionality in a diffusion search process and kinetics of gene expression* »,
Physica A, **277**, 71-82 (2000).

[21] Frédéric Restagno, Lydéric Bocquet, Thierry Biben and Elisabeth Charlaix,
« *Thermally Activated Dynamics of Capillary Condensation* »,
Journal of Physics : Condensed Matter 12, 419-424 (2000).

[20] Frédéric Restagno, Lydéric Bocquet, Thierry Biben,
« *Nucleation Theory for Capillary Condensation* »,
Physical Review Letters 84, 2433-2436 (2000).

1999

[19] Jérôme Crassous, Lydéric Bocquet, Sergio Ciliberto, Claude Laroche,
« *Humidity effect on static aging of dry friction* »,
Europhysics Letters 47, 562-567 (1999).

[18] Jean-Louis Barrat, Lydéric Bocquet,
« *Large slip effect at a nonwetting fluid solid interface* »,

Physical Review Letters, **82**, 4671 (1999).

[17] Jean-Louis Barrat, Lydéric Bocquet,
« *Influence of wetting properties on hydrodynamic boundary conditions at a fluid-solid interface* »,
Faraday Discussions, **112**, 119-127 (1999).

1998

[16] Lydéric Bocquet, Elisabeth Charlaix, Jérome Crassous, Sergio Ciliberto,
« *Moisture induced ageing in granular media and the kinetics of capillary condensation* »,
Nature 396, 735 (1998).

1997

[15] John Bechhoeffer, Jean-Christophe Géminard, Lydéric Bocquet and Patrick Oswald,
« *Experiments on tracer diffusion in thin free-standing liquid-crystal films* »,
Physical Review Letters, **79**, 4922-4925 (1997).

[14] Lydéric Bocquet, Henrik Jensen,
« *Phenomenological study of hysteresis in quasistatic friction* »,
Journal de Physique I, **7** 1603-1625 (1997).

[13] Lydéric Bocquet, Jaroslaw Piasecki,
« *Microscopic derivation of non-markovian thermalization of a Brownian particle* »,
Journal of Statistical Physics 87, 1005-1035 (1997).

[12] Lydéric Bocquet, Jean-Pierre Hansen and Jaroslaw Piasecki,
« *Binary friction tensor of Brownian particles : overcoming spurious finite-size effects in simulations* »,
Journal of Statistical Physics 89, 321-346 (1997).

[11] Lydéric Bocquet,
« *High friction limit of the Kramers equation : the multiple time scale approach* »,
American Journal of Physics, **65**, 140-144 (1997).

1996

[10] Lydéric Bocquet, Jean-Louis Barrat,
« *Hydrodynamic properties of confined fluids* »,
Journal of Physics : Condensed Matter 8, 9297 (1996).

1995

[9] Lydéric Bocquet and Jean-Louis Barrat,
« *Diffusive motion in confined fluids : Mode-Coupling results and Molecular Dynamics calculations* »,
Europhysics Letters 31, 455-460 (1995).

[8] Jaroslaw Piasecki, Lydéric Bocquet and Jean-Pierre Hansen,
« *Multiple time scale derivation of the Fokker-Planck equation for two Brownian spheres suspended in a hard sphere fluid*",
Physica A, **218**, 125-144 (1995).

1994

[7] Lydéric Bocquet, Jean-Pierre Hansen and Jaroslaw Piasecki,
« *On the Brownian Motion of a Massive Sphere Suspended in a Hard Sphere Fluid : II. Molecular Dynamics Estimates of the Friction Coefficient* »,
Journal of Statistical Physics, **76**, 527-547 (1994).

[6] Lydéric Bocquet, Jaroslaw Piasecki and Jean-Pierre Hansen,
« *On the Brownian Motion of a Massive Sphere Suspended in a Hard SphereFluid : I. Multiple Time Scale Analysis and Microscopic Expression forthe Friction Coefficient* »,
Journal of Statistical Physics, **76**, 505-526 (1994).

[5] Lydéric Bocquet and Hartmut Löwen,
« *Blocking of Metastable Phase Formation by an External Field* »,
Physical Review E 49, 1883-1887 (1994).

[4] Lydéric Bocquet and Jean-Louis Barrat,
« *Hydrodynamic Boundary Conditions, Correlation Functions and Kubo Relations for Confined Fluids* »,
Physical Review E 49, 3079-3092 (1994).

1993

[3] Lydéric Bocquet and Jean-Louis Barrat,
« *Hydrodynamic Boundary Conditions and Correlation Functions of Confined Fluids* »,
Physical Review Letters, 70, 2726-2729 (1993).

[2] Lydéric Bocquet,
« *Glissement d'un fluide sur une surface de rugosité modèle* »,
Comptes Rendus de l'Académie des Sciences de Paris, 316, Série II, 7-12 (1993).

1992

[1] Lydéric Bocquet, Jean-Pierre Hansen, Thierry Biben and Paul Madden,
« *Amorphization of a substitutional binary alloy : a computer experiment* »,
Journal of Physics : Condensed Matter 4, 2375-2387 (1992).

Patents

- Dépôt de brevet FR08/57782, « *Déversoirs, procédés de guidage, utilisation d'un matériau pour réaliser ces déversoirs, véhicule, rebord, récipient ou canal, et trieuse de liquides (…)* », C. Ybert, C. Duez, C. Clanet, L. Bocquet.
- Dépôt de brevet FR08/57785 and PCT/EP2009/064474 « *Dispositif et procédé de guidage d'un écoulement liquide, imprimante, véhicule, échangeur thermique et collecteur (…)* », C. Ybert, C. Duez, C. Clanet, L. Bocquet.
- Dépôt de brevet FR 12/59847, WO PCT/FR2013/052442 « *Procédé d'énergie à partir de gradients salins* », L. Bocquet, A. Siria, A.-L. Biance, P. Poncharal.
- Dépôt de brevet WO2017037213A, PCT/EP2016/070683, « *Device for producing energy by salinity gradient through titanium oxide nanofluid membranes*", B. Mottet, L. Bocquet, A. Siria, M. Bechelany
- Dépôt de brevet WO2018177498A1, PCT/EP2017/057183 « *Use of nanoporous carbon membranes for separating aqueous/organic mixtures*", L. Bocquet, A. Siria, B. Laborie, H. Yoshida
- Dépôt de brevet FR3089850A1"*Système pour déposer de manière contrôlée un fluide sur un substrat* », A. Siria, A. Niguès, L. Jubin, L. Bocquet
- Dépôt de brevet EP 20305110.7 "*Reverse Electro-osmotic filtration system and use thereof*", L. Bocquet, A. Siria, A. M'Barki, J. Perez
- Dépôt de brevet 2020 (pending) "*Separation of alcohol using a membrane*", R. Schatzberger, L. Bocquet, A. Siria

Books, chapters

First grade physics books :
« *Toute la mécanique* », Lydéric Bocquet, Jacques Renault, Jean-Pierre Faroux, (Dunod, Editeur)
« *Toute la thermodynamique* », Lydéric Bocquet, Jacques Renault, Jean-Pierre Faroux, (Dunod, Editeur)

« *Friction: an introduction, with emphasis on some implications for winter sports* », L. Bocquet, in the book "*Sports physics*", C. Clanet editor (2013)

« *FIB design for nanofluidic applications*», R. Fulcrand, N.P. Blanchard, A.-L. Biance, A. Siria, P. Poncharal, L. Bocquet, in "*Lecture Notes on Nanoscale Science and Technology",* Springer (2013)

« *Spreading made a* splash », L. Bocquet, book chapter in honnor of PG de Gennes ('*memoriam volume*'), '*De Gennes' Impact in Science*', Eds. F. Brochard-Wyart, J. Prost, J. Bok (2009).

« *Molecular views of electrokinetic phenomena*», D. Huang, L. Joly, C. Cottin-Bizonne, C. Ybert, E. Trizac, L. Bocquet, in the book "*Surface Electrical Phenomena in Membranes and Microchannels*", A. Szymczyk editor (Transworld Research Network, 2008)