

JOURNÉES DE PHYSIQUE STATISTIQUE

Paris – Thursday January 31 & Friday February 1, 2019

Welcome to the 39th edition of the “Journées de Physique Statistique”.

Registration: fill in the form only if you have not already registered electronically and remember to wear your badge.

Communications were, as far as possible, grouped by thematics. Their order is largely due to chance and schedule constraints.

The duration of short talks is **four minutes** sharp (brief question included). Please avoid presenting more than two or three slides.

To allow for a larger understanding, preferred language is **English**.

We thank the physics department of ENS Paris for its financial and logistic support.

Organization team:

Cécile Cottin-Bizonne (Univ. Lyon I / CNRS)

Vivien Lecomte (Univ. Grenoble-Alpes / CNRS)

Rémi Monasson (Ens Paris / CNRS)

Emmanuel Trizac (Univ. Paris-Sud / CNRS)

Francesco Zamponi (Ens Paris / CNRS)



Département
de Physique
—
École normale
supérieure

PROGRAMME

Thursday January 31, 2019

9h00 - 9h15	Registration
9h15 - 11h00	Série A (Chairman: Rémi Monasson)
11h00 - 11h30	Pause
11h30 - 12h30	Bernard Derrida (ENS Paris, Collège de France) <i>The legacy of Elizabeth Gardner in the theory of disordered systems</i>
12h30 - 13h00	Jean-Louis Barrat (Univ. Grenoble Alpes, CNRS) <i>Deformation of materials: a statistical physics problem?</i>
13h00 - 14h15	Lunch
14h15 - 14h45	Jorge Kurchan (ENS Paris, CNRS) <i>Two symptoms of chaos in quantum systems</i>
14h45 - 15h15	Emmanuelle Guillard (Saint Gobain, CNRS) <i>Physics problems inspired by the glass industry</i>
15h15 - 15h45	Pause
15h45 - 17h15	Série B (Chairwoman: Cécile Cottin-Bizonne)
17h15 - 17h30	Pause
17h30 - 18h00	Anne-Florence Bitbol (Sorbonne Univ., CNRS) <i>Proteins: sequences and physics</i>
18h00 - 18h30	Arezki Boudaoud (ENS Lyon, CNRS) <i>On the robustness of organ morphogenesis</i>

Friday February 1, 2019

- 9h00 - 10h45** **Série C** (Chairman: Vivien Lecomte)
- 10h45 - 11h15** Pause
- 11h15 - 11h45** **Léonie Canet (Univ. Grenoble Alpes, CNRS)**
Breaking of scale invariance in the correlation functions of fully developed turbulence
- 11h45 - 12h15** **Benjamin Rotenberg (Sorbonne Univ., CNRS)**
Underscreening and Casimir force in confined ionic liquids
- 12h15 - 13h45** Lunch
- 13h45 - 14h15** **Laura Messio (Sorbonne Univ., CNRS)**
Extrapolation of thermodynamic functions from high temperature expansions: application to spin models
- 14h15 - 14h45** **Frédéric Lechenault (ENS Paris, CNRS)**
"Seismicity" in knitted fabric
- 14h45 - 15h15** **Claude Loverdo (Sorbonne Univ., CNRS)**
Physical modeling of the interaction between antibodies and bacteria in the gut
- 15h15 - 15h30** **Série D** (Chairman Francesco Zamponi)
- 15h30 - 16h00** Pause
- 16h00 - 17h30** **Série D – continued** (Chairman Francesco Zamponi)

Série A – chairman Rémi Monasson

Thursday January 31, 9h15 - 11h00

- **LENZ, Martin**
LPTMS
Extensile actomyosin?
- **QIN, Liang**
LPS-ENS
Efficient biochemical simulation via event-chain Monte Carlo
(Werner Krauth)
- **MOLARI, Marco**
LPS-ENS
Modeling affinity maturation: the role of antigen dosage in vaccination
(Simona Cocco)
- **FRULEUX, Antoine**
RDP-ENS Lyon
Modulation of tissue growth heterogeneity by responses to mechanical stress
(Arezki Boudaoud)
- **BOUZID, Mehdi**
LPTMS
Mechanical properties of branched actin networks
(Martin Lenz)
- **BELBAHRI, Mohamed Reda**
PMMH/IBDM
The impact of actin binding protein for branched networks force generation
(Olivia du Roure, Alphée Michelot)
- **LE ROY, Hugo**
LPTMS
Formation de fibre dans des systèmes auto-assemblés frustrés
(Martin Lenz)
- **BARBERI, Luca**
LPTMS
Curvature reduces local compaction in DNA toroids
(Martin Lenz)

- **QUILLET, Catherine**
LIPhy
Mechanics in the folding of the drosophila embryo
- **NISHIGUCHI, Daiki**
 Institut Pasteur
Long-ranged bacterial vortex lattice in periodic pillar arrays
 (Guillaume Duménil)
- **LAPLAUD, Valentin**
PMMH
Dynamics and mechanics of the dendritic cell cortex
 (Olivia du Roure, Matthieu Piel)
- **FRANÇOIS, Bill**
PMMH
Statistical physics of intermittent swimming of zebrafish
 (Benjamin Thiria, Frédéric Lechenault)
- **COCCO, Simona**
LPS-ENS
Inference of fitness landscapes from protein sequences
- **MARREC, Loïc**
 Laboratoire Jean Perrin
Quantifying the impact of a periodic presence of antimicrobial on resistance evolution in a homogeneous microbial population
 (Raphaël Voituriez, Anne-Florence Bitbol)
- **BLOSSEY, Ralf**
 Unité de Glycobiologie Structurale et Fonctionnelle
Kinetic proofreading in transcriptional initiation
- **CHEVALIER, Nicolas**
MSC
Gut peristalsis: a tale of two contractile oscillators coupled by the enteric nervous system
- **BANERJEE, Tirthankar**
LPTMS
Rolled up or crumpled: phases of asymmetric tethered membranes

- **BLOKHUIS, Alexander**

Gulliver

Transient compartmentalization: mutations and noise

(David Lacoste, Philippe Nghe)

- **VILQUIN, Alexandre**

LOMA

Large variability in the motility of spiroplasmas in media of different viscosities

(Hamid Kellay)

- **BERTIN, Vincent**

LOMA

Beyond the lubrication approximation: symmetrization of a free film

(Thomas Salez, Elie Raphael)

- **HARAZI, Maxime**

Laboratoire Interdisciplinaire de Physique (LIPhy)

Oscillations of a cubic bubble

(Philippe Marmottant)

- **HERBAUT, Rémy**

MSC

Modèle de lignes de contact dynamiques quadruple en solidification

(Philippe Brunet, Laurent Royon, Laurent Limat)

- **DATIN, Paul**

SPEC-CEA

Orientational study of photochromic compounds in a glass

(Daniel Bonamy)

- **BIELINSKI, Clément**

BMBI, Compiègne

Impact of the flow on mass transfer from particles

(Badr Kaoui)

- **D'ANGELO, Christophe**

Institut de Physique de Nice

Impact d'objets bicomposites

(Christophe Raufaste, Franck Celestini)

Série B – chairwoman Cécile Cottin-Bizonne

Thursday January 31, 15h45 - 17h15

- **NAERT, Antoine**
Laboratoire de physique ENS-Lyon
Effective temperatures in a granular gas experiment
- **ALTIERI, Ada**
LPS-ENS
Two-step yielding transition in models of attractive particles
(Giulio Biroli)
- **LIU, Chen**
FAST
Darcy law for yield stress fluid
(Laurent Talon, Alberto Rosso)
- **BOCCARDO, Francesco**
Institut Lumière Matière - CNRS/Université Lyon 1
Dewetting-induced pinching of strained solid films at the nanoscale
(Olivier Pierre-Louis, Francesco Montalentì)
- **PAUCHARD, Ludovic**
FAST
Evolution of crack networks in coatings of nanosprings
- **JEUDY, Vincent**
LPS, Orsay
Universal and material dependent behaviors of domain walls in thin ferromagnets
- **LE PRIOL, Clément**
LPT, ENS
Avalanches above the depinning
(Pierre Le Doussal)
- **GREBENKOV, Denis**
Laboratory of Condensed Matter Physics, Ecole Polytechnique
Diffusion-limited reactions in dynamic heterogeneous media

- **TIMCHENKO, Boris**
Technion – Israel Institute of Technology
Non-Equilibrium Radiative Heat Transfer
(Eric Akkermans)
- **AUMAÎTRE, Sébastien**
SPEC-CEA
Probing dissipative processes in stationary out-of-equilibrium systems through the fluctuations of injected power
- **DÉMERY, Vincent**
Gulliver
Driven probe under harmonic confinement coupled to a fluctuating field
- **FALLER, Hugues**
SPEC-CEA & LIMSI-CNRS
Universality of structure functions in turbulence
(Bérengère Dubrulle, Caroline Nore)
- **CAZAUBIEL, Annette**
MSC
Hypergravity wave turbulence
(Eric Falcon)
- **PUCCI, Giuseppe**
MIT et Institut de Physique de Rennes
Spin lattices of walking droplets
(John W. M. Bush)
- **LAVAUD, Maxime**
LOMA
Brownian motion in confinement
(Thomas Salez, Yacine Amarouchene)
- **DOLGUSHEV, Maxim**
LPTMC
Beyond persistence exponents of first-passage statistics
(Olivier Bénichou et Raphaël Voituriez)
- **GAUTIÉ, Tristan**
LPT
Non-intersecting Brownian motions in presence of a moving boundary
(Pierre Le Doussal, Jean-Philippe Bouchaud, Satya Majumdar)

- **SEKIMOTO, Ken**
MSC, Gulliver
Martingale in progressive quenching process
- **FOSSET, Antoine**
LadHyx
Liquidity crises: a one dimensional phase transition
(Michael Benzaquen)
- **TOMAS, Mehdi**
Ladhyx & CMAP
Follow the flow: liquidity interactions in the financial markets
(Michael Benzaquen, Mathieu Rosenbaum)
- **MORAN, José**
CAMS/EHESS
Will a large economy be stable?
(Jean-Philippe Bouchaud, Jean-Pierre Nadal)
- **BONNEMAIN, Thibault**
LPTMS
Quadratic Mean Field Games
(Denis Ullmo)
- **DEGIULI, Eric**
Institut Philippe Meyer, ENS
Random Language Model

Série C – chairman Vivien Lecomte

Friday February 1, 9h00 - 10h45

- **GOLDT, Sebastian**

Institut de Physique Théorique

Reconstructing patterns from the weights of a Hopfield model

(Lenka Zdeborova)

- **HWANG, Sungmin**

LPTMS

On the number of limit cycles in asymmetric neural networks

- **JEANNERET, Raphaël**

IMEDEA

Particle diffusion in inhomogeneous activity landscapes

- **SCALLIET, Camille**

Laboratoire Charles Coulomb

Marginally stable phases in structural glasses

(Ludovic Berthier, Francesco Zamponi)

- **GUISELIN, Benjamin**

Laboratoire Charles Coulomb

Evidence for a disordered critical point in a model glass-former

(Ludovic Berthier, Gilles Tarjus)

- **IKEDA, Harukuni**

Laboratoire de Physique Théorique, ENS

Universal non-mean-field scaling in the density of state of amorphous solids

(Francesco Zamponi)

- **COSLOVICH, Daniele**

Laboratoire Charles Coulomb

Clear-cut determination of the mode-coupling crossover in glass-forming liquids

- **BUDZYNSKI, Louise**

Laboratoire de Physique Théorique, ENS

Biased landscapes for random Constraint Satisfaction Problems

(Guilhem Semerjian)

- **MAIMBOURG, Thibaud**

LPTMS

Low-temperature anomalies in structural glasses: impact of jamming criticality

- **URBANI, Pierfrancesco**

Institut de Physique Théorique

Glassiness in high dimensional inference

- **COBUS, Laura**

Institut Langevin

The Anderson localization transition observed with ultrasound in three dimensional mesoglasses

(John H. Page)

- **VARELA ALVAREZ, Lucas**

LPTMS

Configurational and energy landscape in one-dimensional Coulomb systems

(Emmanuel Trizac, Gabriel Tellez)

- **BAPTISTA, Anthony**

LPTMC

Modeling micro-heterogeneity in mixtures: the role of many body terms

(Aurélien PERERA)

- **CLAIRAND, Martina**

ESPCI

Active droplets synchronization

(Jérôme Hardouin, Teresa Lopez León, Jordi Ignés Mullol)

- **SHPIELBERG, Ohad**

Statistical physics, Collège de France

Universality in dynamical phase transitions of diffusive systems

(Bernard Derrida)

- **ARNOULX DE PIREY, Thibaut**

MSC

Path integrals and changes of variable

(Frédéric van Wijland)

- **TRIZAC, Emmanuel**

LPTMS

When random walkers help solving intriguing integrals

- **FLEURY, Vincent**

MSC

Morphogenèse des oreilles

- **LEGAY, Bastien**

LadHyX

Statistical physics of natural and synthetic images

(Michael Benzaquen)

- **WIESE, Kay**

LPTENS

Field Theories for loop-erased random walks

- **DORNIC, Ivan**

LSPEC, CEA Saclay, et LPTMC

Pfaffian Persistence, a Bonnet-Painlevé VI, and Ising Model Criticalities

- **NICOLIS, Stam**

Institut Denis Poisson

Probing the measure of stochastic magnets through their moment hierarchy

- **FERRÉ, Grégoire**

CERMICS - ENPC

Adaptive sampling of large deviations

(Gabriel Stoltz)

- **SPADA, Gabriele**

LKB

Two-dimensional ϕ^4 theory at large order

- **GOLDFRIEND, Tomer**

LP-ENS

Quasi-integrable systems: slow dynamics and fluctuations

(Jorge Kurchan)

- **DAVIET, Romain**

LPTMC

Nonperturbative functional renormalization-group approach to the sine-Gordon model

(Nicolas Dupuis)

Série D – chairman Francesco Zamponi

Friday February 1, 15h15 - 15h30 & 16h00 - 17h30

- **BRUN-COSME-BRUNY, Marvin**
LIPhy, Grenoble
Effective diffusivity of microswimmers in a crowded environment
(Salima Rifaï, Philippe Peyla)
- **DE BLOIS, Charlotte**
Gulliver, ESPCI
Swimming droplets in confined geometries
(Olivier Dauchot)
- **WEI, Mengshi**
Gulliver, ESPCI
Active colloids in confined environment
(Olivier Dauchot)
- **BAYATI, Parvin**
LPTMS
Electrophoresis of active Janus particles
(Emmanuel Trizac)
- **PONCET, Alexis**
LPTMC
Correlations of Active Brownian Particles
(Olivier Bénichou, Vincent Démery)
- **DAUCHOT, Olivier**
Gulliver, ESPCI
Dynamics of a self-propelled particle in a harmonic trap
- **ZAKINE, Ruben**
Matière et Systèmes Complexes
Can we measure surface tension in active systems?
(Frédéric van Wijland, Jean-Baptiste Fournier)
- **TAUB, Raphaëlle**
LPS Orsay
Fiber assembly buckling against rigid surface
(Frédéric Restagno)

- **DURAND, Marc**
MSC
Melting of two-dimensional soft cellular systems
- **PALAIA, Ivan**
LPTMS
Correlated counterions and like-charge attraction in cement
(Emmanuel Trizac)
- **BONACCI, Francesco**
Navier, Ecole des Ponts
Relevance of interparticle contact aging in the strengthening of colloidal suspensions
(Chateau Xavier)
- **DUREY, Guillaume**
Équipe EC2M, laboratoire Gulliver
Skyrmion self-assembly in shells of liquid crystal
(Teresa Lopez-Leon)
- **MANACORDA, Alessandro**
Laboratoire de Physique Théorique, ENS
Numerical results on the dynamics of infinite-dimensional particle systems
(Francesco Zamponi)
- **ROCHÉ, Matthieu**
Matière et Systèmes Complexes
Probing dissipation during the spreading of non-Brownian suspensions
- **FREYDIER, Perrine**
FAST (Univ. Paris-Sud / CNRS)
Impact des échanges cationiques sur la rhéologie des sédiments de cavités souterraines
(Frédéric Doumenc, Béatrice Guerrier, Jérôme Martin, Pierre-Yves Jeannin)
- **NATH, Saurabh**
PMMH, ESPCI
Sticky slippery hemi-solids
(David Quéré)
- **JHA, Aditya**
PMMH, ESPCI
Viscous Drop Impacts
(David Quéré)

- **LABARRE, Vincent**
 LSCE
Mean Field analysis of the HPP model with open boundaries and bulk forcing
- **SCOPA, Stefano**
 LPCT Nancy
Exact solution of time-dependent Lindblad equations with closed algebras
 (Dragi Karevski)
- **BRINGUIER, Eric**
 MPQ
L'équation de transport électronique de Boltzmann sans l'approximation du temps de relaxation
- **CASTIN, Yvan**
 Laboratoire Kastler Brossel
Branche d'excitation collective du continuum dans les gaz de fermions superfluides
- **LEYRONAS, Xavier**
 Laboratoire de Physique de l'ENS
Phase diagram of an impurity immersed in a superfluid of spin 1/2 attractive fermions
- **WERNER, Félix**
 Laboratoire Kastler Brossel
Resummation of diagrammatic series with zero convergence radius for strongly correlated fermions
- **VAN HOUCKE, Kris**
 LPS-ENS
High-precision calculation of Fermi-polaron properties