JULIEN RANDON-FURLING

Work address

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Work experience

2020 - 2021	*Alliance Visiting Associate Professor* **- Columbia University, New York**
Nov - Dec 2021	*Invited Fellow*, **Euler International Institute, St Petersburg** (Russia)
Sept 2010 - …	**Senior Associate Professor Université Paris 1 Panthéon-Sorbonne** Research team SAMM (*Statistics, Analysis, Multidisciplinary Modeling*) FP2M *Fédération parisienne de modélisation mathématique* (CNRS FR2036)
	Adjunct professor
Sept 2015 - …	**PSL** (*Univerité Paris Sciences & Lettres*)
Jan 2018 - …	**École des Ponts** ParisTech
2014 & 2016	**European Union Mobility Professorships** Univ. Ca' Foscari (Venice, Italy) - Univ. Federico II (Naples, Italy)
Before 2010:	**Postdoctoral Researcher** German National Research Agency (*DFG*) Team of Prof. Heiko Rieger **Complex Systems**, Universität des Saarlandes (Saarbrücken, Germany)
	Doctoral Researcher *Laboratoire de Physique Théorique et Modèles Statistiques* (LPTMS), Univ. Paris-Saclay (Orsay)
	Science Demonstrator Palais de la Découverte / Universcience (National Science Museum), Paris

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Education

Habilitation in Mathematics
Université Paris 1 Panthéon Sorbonne

PhD in Statistical Physics - Univ. Paris-Sud Orsay / Paris-Saclay
on Extreme value statistics of Brownian motion (adv.: S. N. Majumdar, A. Comtet)
"Très honorable et Félicitations du Jury" – Summa cum laude

Master of Mathematics & Mathematical Sciences, Univ. of Cambridge
England, United Kingdom
BA Mathematics + "Part III Maths" (M.Math) – *1st Class Honours*

Classes Préparatoires aux Grandes Écoles (Maths & Physics track)
Lycée Louis-le-Grand, Paris

Science Baccalaureate *"Félicitations du Jury" - Summa cum laude*
*Awarded the **national prize** for Philosophy Dissertation at* Concours Général
(France's oldest nationwide high school competition, created in 1747)

Organizing / Administration / Expertise / Awards / Other [since 2010]

BASIS award (Foundation for the Advancement of Theoretical Physics and Mathematics)
with Prof. Dmitry Zaporozhets. July 2019
invited at the St Petersburg Dpt of the V.A. Steklov Institute of Mathematics, **Russian Academy of Sciences**

Recipient of the national award for research (PEDR) since 2017 (top 20% scientists in France)

Recipient of a CRCT (Research sabbatical) Spring semester 2019

Scientific steering committee - Paris Institute for Complex Systems (CNRS): Member 2019 -…

Jurys / Selection committees
    - member of selection committee for an Assistant Professorship at Paris-1 (2018)
    - member of the selection committee for all non-tenure track positions in Mathematics (Univ. Paris-1)
    - jury member for the PhD thesis of N. Levernier (UPMC, dir : R. Voituriez, O. Bénichou ; 2017)
    - referee for the PhD thesis of A. Barbier (Sorbonne Univ., dir : R. Voituriez, O. Bénichou ; 2021)

Member of the **Faculty Board** 2014-2018 & Coordinator of a list for the Univ. Senate (Paris-1, 2016)

Referee for international peer-reviewed journals

    Physics: Physical Review Letters, Physical Review E, EPL, J. of Stat. Mechanics, J. Phys. A,
        J. Stat., Comm. Physics, EPJ B, …
    Mathematics: Bull. of the London Mathematical Society, Stoch. Proc. & their Applications, …
    Interdisciplinary: Nature Communications, Complexity, J. Royal Society Interface, Cities, …

Coordination de projets, programmes, conférences et séminaires :

2023	Co-organizer of the annual ***GdR Conference on Stochastic Geometry***
2019 - …	Co-organizer of the **National PhD Award in Complex Systems** ISC-Paris, IXXI, Académie d'Excellence UCA
2018	Co-Principal Investigator with Madalina Olteanu (Paris-1) and William Clark (UCLA) of a project for the **EU data challenge: *D4I – Migration data in European cities***
2018-2019	Co-coordinator with historian Karine Le Bail (CNRS/EHESS) of an **interdisciplinary CNRS research project** *"France's post WW2 'Epuration' movement in the Arts: analysis and modeling of a complex social system, from individual trajectories to collective patterns"*
2017-2018	Organizer of a workshop series on the socio-spatial dynamics in the Paris area *"Faces of Paris"* **Atelier Campus Condorcet**
04/2017	Organizer of the workshop ***Topics in Random Geometry*** (funding: CNRS + Univ. Paris-1)
2011-17	Organizer of the biennial international and interdisciplinary conference: ***Interactions – Mathematical sciences put to the proof of human and social sciences*** (sponsored by Paris-1, Campus Condorcet, ISC-PIF, Île de France Region).

Publications & communications

Main scientific publications in international peer-reviewed journals:

23 – J. R-F, P. Salminen, P. Vallois, *On a first hit distribution of the running maximum of Brownian motion,* **Stoch. Proc. & Appl.** special issue in mem. Larry Shepp (2022)

22 – B. de Bruyne, J. R-F, and S. Redner, *A tale of two (and more) altruists,* **J. Stat. Mech.** *103405 (2021)*

21 – J. R-F, D. Zaporozhets, *Convex hulls of several multidimensional Gaussian random walks,* Записки научных семинаров ПОМИ 505, 244 (2021)

20 – B. de Bruyne, J. R-F, S. Redner, *Optimisation & growth in first-passage resetting,* **J. Stat. Mech.** 013203 (2021)

19 – C. de Bézenac, W. Clark, M. Olteanu, and J. R-F, *Measuring and Visualizing Patterns of Ethnic Concentration: The Role of Distortion Coefficients,* **Geographical Analysis**, 12271 (2021)

18 – B. de Bruyne, J. R-F, S. Redner, *Optimisation in first-passage resetting,* **Phys. Rev. Letters** 125 (5) 050602 (2020)

17 – M. Olteanu, C. de Bézenac, W. Clark, and J. R-F, *Revealing multiscale segregation effects from fine-scale data,* **Spatial Demography**, 8(3), 255 (2020)

16 – M. Olteanu, J. R-F, and W. Clark, *Segregation through the multiscalar lens,* **PNAS** 116(25): 12250 (2019)

15 – J. R-F, S. Redner, *Residence time near an absorbing set,* **J. Stat. Mech.** 103205 (2018)

14 – M. Olteanu, M. Cottrell, A. Hazan, J. R-F, *Multidimensional urban segregation: toward a neural network measure,* **Neural Computing & Applications** 31 (6) 1 (2018).

13 – J. R-F, M. Olteanu, A. Lucquiaud, *From urban segregation to spatial structure detection,* **Env. & Planning B: Urban Analytics and City Science** doi:10.1177/2399808318797129 (2018)

12 – A. Nucit, J. R-F, *A network model for the propagation of Hepatitis C with HIV co-infection,* **J. Stat. Mech.** 053205 (2017)

11 – J. R-F, F. Wespi, *Facets on the convex hull of d-dimensional Brownian and Lévy motion,* **Physical Review E** 95, 032129. (2017).

10 – E. Ben-Naim, P.L. Krapivsky, J. R-F, *Maxima of two random walks: universal statistics of lead changes,* **J. Phys. A: Math. & Theor.** 49, 205003 (2016).

9 – J. R-F, *From Markovian to non-Markovian persistence exponents,* **Europhysics Letters (EPL)** 109 40015 (2015). "**Editor's choice**"

8 – J. R-F, *Universality and time-scale invariance for the shape of planar Lévy processes,* **Physical Review E** 89, 052112 (2014).

7 – A. Hazan, J. R-F, *A Schelling model with switching agents: decreasing segregation via random allocation and social mobility,* **EPJ B** 86, 421. (2013)

6 – J. R-F, *Convex hull of n planar Brownian paths: an exact formula for the average number of edges,* **J. Phys. A: Math. & Theor**. 46, 015004. (2012). "**Highlight of 2013**"

5 – S.N. Majumdar, A. Comtet, J. R-F, *Random convex hulls and extreme-value statistics*, **J. Stat. Phys.** 138 (6) 955. (2010)

4 - J. R-F, S.N. Majumdar, A. Comtet, *Convex hull of planar Brownian motion: exact results and an application to ecology*, **Phys. Rev. Letters** 103, 140602. (2009)

3 - G. Schehr, S.N. Majumdar, A. Comtet, J. R-F, *Exact distribution of the maximal heightof p vicious walkers*, **Phys. Rev. Letters** 101, 150601. (2008)

2 - S.N. Majumdar, J. R-F, M.J. Kearney, M. Yor, *On the time to reach maximum for a variety of constrained Brownian motions*, **J. Phys. A: Math. & Theor.** 41, 365005. (2008)

1 - J. R-F, S.N. Majumdar: *Distribution of the time at which the deviation of a Brownian motion is maximum before its first-passage time*, **J. Stat. Mech.** P10008. (2007)

Principal participations to peer-reviewed international conferences [in the last 5 years]

July 2022 "Random walks, branching, and random geometry"
[**Invited Plenary Speaker**]
Satellite Session of the ***International Congress of Mathematicians* (ICM 2022)**, Russia

Nov-Dec 2021 "New Trends in Mathematical Stochastics"
[**Invited Plenary Speaker & Invited Fellow**]
Semester of the ***Euler International Mathematical Institute***, St Petersburg, Russia

Nov 2021 "Complex networks to detect discriminations in a historical process"
with K. Le Bail – talk given by K. Le Bail & JRF
[Communication] *Int. Conf. on Complex Networks & Appl.*, Madrid, Spain

Oct 2021 "Socio-Spatial Complexity: Cities As Neural Networks"
with S. Soleiman – talk given by S. Soleiman
[Communication] *World Conference on Complex Systems*, Lyon, France

Oct 2021 "Analytical Derivations of Critical Tolerance Thresholds in the Schelling Model"
with A. Lucquiaud – talk given by A. Lucquiaud
[Communication] *World Conference on Complex Systems*, Lyon, France

July 2021 "A dynamical model of manuscript transmission"
with J.-B. Camps – talk given by JRF
[Communication] *International Medieval Congress*, Leeds, UK

Mar 2020 "Random Convex Hulls & Other Extreme-Value Problems"
[**Invited Plenary Speaker**]
Universidad Nacional Autónoma de México, Mexique

Sep 2019 "Stochastic Geometry"
[**Invited Plenary Speaker**]
Euler International Mathematical Institute, St Petersburg, Russia

May 2019 "Brownian extreme-value problems"
[**Invited Plenary Speaker**]
SPSR 2019, Bucharest, Romania

Apr 2019 "The distorted city – Capturing the complexity of perceived segregation"
[**Invited Plenary Speaker**]
ECSR Workshop, EUI Florence, Italy

Apr 2019 "Analyzing spatial dissimilarities in high-resolution geo-data"
with M. Olteanu & W. Clark (UCLA, USA) – presented by M. Olteanu
ESANN, Bruges, Belgium

Dec 2018 "Assessing segregation in complex networks through a multi-focal approach"
with M. Olteanu (INRA-Paris-1) – talk given by JRF
[Communication]
International Conference on Methodological and Computational Statistics, Pisa, Italy

Nov 2018 "Migrations and Segregation in European Cities"
with M. Olteanu & W. Clark (UCLA, USA) – talk given by JRF
[**Invited Plenary Speaker**]
D4I European Commission Workshop, Brussels, Belgium

Oct 2018 "*L'épuration artistique en France : analyse et modélisation d'un système social complexe de trajectoires individuelles et collectives*"
with K. Le Bail (CNRS) – joint talk by K. Le Bail and JRF
[**Invited Plenary Speakers**]
Colloquium CNRS *INFINITI*, Institut Henri-Poincaré, Paris

Sept 2018 "Converging to the city: a myriad trajectories"
with W. Clark and M. Olteanu – talk given by JRF
[Communication]
CCS – World Conference on Complex Systems, Thessaloniki, Greece

Sept 2018 "Was there a `Medieval Literary Canon' in the Middle Ages?"
with J.-B. Camps (École nationale des Chartes) – talk given by J.-B. Camps
[Communication]
The Medieval Literary Canon In The Digital Age, Gent, Belgium

June 2018 "Lead changes between maxima of Lévy processes"
with E. Ben-Naim (Los Alamos, USA) & P. Krapivsky (Boston) – talk given by JRF
[Communication]
International Workshop on Applied Probability, Budapest, Hungary

June 2018 "A dynamic model of manuscript transmission"
with J.-B. Camps – talk given by J.-B. Camps
[Communication]
Computational Methods in the Humanities - ComHum 2018, Lausanne, Switzerland

May 2018 "Facets on higher-dimensional Lévy convex hulls"
[**Invited Plenary Speaker**]
Stochastic Geometry Days, Paris, France

Feb. 2018 "Multiscalar sociospatial dynamics in the city"
with M. Olteanu – talk given by JRF [Plenary Talk]
BiFi *International Conf. on Complex Systems*, Zaragoza, Spain

Sept. 2017 "Analyzing spatial dissimilarities via effective-time series"
with M. Olteanu – talk given by JRF
[Plenary Talk]
International Conference on Time Series, Granada, Spain

Juin 2017 "Multidimensional urban segregation: an exploratory case study"
with M. Cottrell (Paris-1), A. Hazan (UPEC) & M. Olteanu – talk given by JRF
[Plenary Communication]
Workshop on Self-Organizing Maps - WSOM+, Nancy, France

Sept. 2016 "Not so wild guesses:
on the use of past information in certain statistical and stochastic models"
[**Invited Plenary Speaker**]
Journée Prévision & Incertitude de la Physique à l'Histoire, ENS Paris-Saclay

Fév. 2016 "Convex hull of planar Brownian motion"
[Communication]
International Conference on Operations Research, La Habana, Cuba

Juin 2015 "On the shape of planar Lévy processes"
[Communication]
Statistical Mechanics, Integrability & Combinatorics, Galileo Institute, Florence, Italy

Juin 2014 "Counting edges on Brownian convex hulls"
[Communication]
Advances in Non-Equilibrium Processes, Galileo Institute, Florence, Italy

Mai 2014 *"Imagination créative : fécondité de l'usage du récit dans l'enseignement des sciences"*
with A. Viguier - joint presentation
[Communication]
Colloquium *Creativité et Apprentissage*, HEP Lausanne, Switzerland

Oct. 2013 "Extreme-value properties of Brownian motion"
[**Invited Plenary Speaker**]
9th UNESCO *COPROMAPH Conference*, Cotonou, Benin

Sept. 2013 "Schelling-type urban segregation models with switching and preferential dynamics"
with L. Gauvin (ISI, Turin) et A. Hazan (UPEC) – talk given by JRF and L. Gauvin
[Communication]
European Conference on Complex Systems, Barcelona, Spain

Science diffusion – Open science

Organizer of an **exhibition** with physicist & artist **Dominique Peysson (ST+Arts Award, EU Vertigo Programme** – Horizon 2020) and artist **Julien Prévieux** (**Prix Marcel Duchamp 2014**, professor at Beaux-Arts Paris).
Science & Engineering Library, **Univ. Columbia New York**, april 2020 *(postponed)*

Co-organizer with K. Le Bail of a round table at the open-science festival ***Les Rendez-vous de l'Histoire***
L'histoire : une science mathématique ?, Oct. 2017, Blois, France

Book review of Pablo Jensen's *Pourquoi la société ne se laisse pas mettre en équations* Paris, Seuil, 2018. Review published in **La Recherche**, #534, April 2018.

Advisor and Translator (English to French):

> *50 Clés pour comprendre la Physique quantique*
> Joanne Baker, Paris : Dunod, 2016 - translated with F. Pétry

> *Mets-toi ça dans la tête : Les stratégies d'apprentissage à la lumière des sciences cognitives*
> Peter C. Brown, Henry L. Roediger, Mark A. McDaniel, Genève : Ed. M.Haller, 2016
> translated with A. Viguier
> [*Make It Stick: the science of successful learning*, **Harvard University Press**]

> *La société des inconnus : histoire naturelle de la collectivité humaine*
> Paul Seabright, Genève : Ed. M. Haller, 2011
> [*The Company of Strangers: a natural history of economic life*, **Princeton University Press**]

> ***Le Cours de Physique de Feynman***
> Paris: Dunod, 2010
> *Co-supervision of the LaTeX tanscription + transl. of 2 new chapters*

> *Penser le risque : apprendre à vivre dans l'incertitude*
> Gerd Gigerenzer, Genève : Ed. M. Haller 2010
> [*Calculated Risks: how to know when numbers deceive you*, Simon & Schuster]

> *Petites leçons de physique dans les jardins de Paris*
> H. C. v. Baeyer, Paris : Dunod, 2009

> *Le petit livre des grandes idées scientifiques*
> Surendra Verma, Paris : Dunod, 2009

> *Juste assez de physique pour briller en société*
> Joanne Baker, Paris : Dunod, 2008

> *Petit cours de sciences ... pour ceux qui n'y comprennent rien*
> Natalie Angier, Paris : Dunod, 2008
> [*The Canon: the beautiful basics of science*, **Faber & Faber**]

> *Grigori Perelman face à la conjecture de Poincaré*
> Donal O'Shea, Paris : Dunod, 2007

> *Dans la jungle des nombres premiers*
> John Derbyshire, Paris : Dunod, 2007

> *Et Dieu créa les nombres : les plus grands textes de mathématiques réunis et commentés par*
> ***Stephen Hawking***,
> Paris : Dunod, 2006