

*Institute for Scientific Interchange  
Data Science Lab  
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born on 22.12.1982*

# Laetitia Gauvin

## Current position

- Apr. 2015 – **Principal Researcher**, *Institute for Scientific Interchange, Data Science LAB*, Turin, Italy.
- Nov. 2013 – **Visiting Scientist**, *Institut rhône-alpin des systèmes complexes, IXXI, École Normale Supérieure*, Lyon, Collaboration with Márton Karsai, Laboratoire de l'informatique du parallélisme.

## Research experience

- Nov. 2011 – **Junior Researcher**, *Institute for Scientific Interchange, Data Science LAB*, Turin, Italy.  
March 2015
- 2010 – 2011 **Post-doctoral researcher**  
Institute Physics Department, *École Normale Supérieure*, Paris  
Project Urban Collective Dynamics : Individual and Spatial Heterogeneities, ANR (ANR-08-SYSC-008)  
Collaborators Annick Vignes, ERMES, *Equipe de Recherche sur les Marchés, l'Emploi et la Simulation*, Université Panthéon-Assas, Paris 2 and Jean-Pierre Nadal, *Laboratoire de Physique Statistique de l'Ecole Normale Supérieure*.
- 2007 – 2010 **PhD**  
Laboratoire de Physique Statistique, **École Normale Supérieure**, Paris, France  
Title Modeling of socio-economic systems with statistical physics tools  
presented on October, 22nd 2010  
Advisors J.-P. Nadal and J. Vannimenus  
Fellowship from the French Ministère de l'Enseignement Supérieur et de la Recherche, allocated by the Ecole doctorale de Physique de l'UPMC ED 389  
Jury Alain Barrat, CPT, Marseille  
Leticia Cugliandolo, LPTHE, Paris  
Silvio Franz, LPhTMS, Orsay  
Alan Kirman, GREQAM, Marseille  
Matteo Marsili ICTP, Trieste  
Jean-Pierre Nadal, ENS - CAMS, Paris

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## Teaching experience

- June 2014 Teaching **network science** - **data science** in the training program Big Dive (<http://www.bigdive.eu/>)
- March 2014, Lesson **linear algebra for data mining** in the course Data Mining, Statistical  
March 2015 Modeling and Machine Learning, Master 1 / Master 2, Università degli Studi di Torino
- June 2013 Teaching **network science** in the training program Big Dive (<http://www.bigdive.eu/>)
- 2008 – 2010 Teaching assistant for undergraduate students, Université Pierre et Marie Curie, *Paris*.  
— **General mathematics for scientists ((30h)**  
— **Calculus and statistics (100h)**

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## Supervision

- 2015 Supervisor of Iacopo Iacopini, Master student, Università degli Studi di Torino, 6-months research training on traffic data. (Co-supervisor : Giovanni Petri).
- 2014 Supervisor of Laura Alessandretti, Master student, École Normale Supérieure de Lyon, one year research training on transportation networks. (Co-supervisor : Márton Karsai).
- 2013 Supervisor of Andrea Martini, Master student, Università degli Studi di Torino, 6-months research training on community detection on temporal networks. (Co-supervisor : Ciro Cattuto).

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## Education

- 2006 – 2007 Preparation to physics agregation University of Provence, Marseille, France.
- 2005 – 2006 Master's degree in physics , speciality : theoretical, mathematical and particle physics, with honors. **Centre de Physique Théorique, Marseille**, France.
- 2004 – 2005 Master 1 in fundamental physics with ERASMUS program, with high honors, **Imperial College**, London, United Kingdom.  
*Imperial College International Diploma*
- 2003 – 2004 Licence-Magistère in fundamental physics with honors ; **Université Paris XI**, Orsay, France.
- 2000 – 2003 Preparatory classes (MPSI, MP), Lycée Jacques Amyot, Melun, France.

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## Responsibilities

### Programme Comittee Member

ACM Web Science Conference 2014

### Reviewer

- Physica A
- Advances in Complex Systems
- EPJ Data Science
- JSTAT

- PLoS one
- Physical Review E

## Skills

### Computer skills

Systems	Windows, Linux
Programming languages	C/C++, Matlab, PYTHON
Text formatting	L <sup>A</sup> T <sub>E</sub> X, Word

### Languages

French	<b>native language</b>
English	<b>understood, spoken and written</b>
German	<b>basic knowledge</b>
Italian	<b>basic knowledge</b>

## Publications

### Journal Articles

- [1] L. Gauvin, A. Panisson, C. Cattuto, *Detecting the community structure and activity patterns of temporal networks : a non-negative tensor factorization approach*, PLoS ONE 9(1) : e86028 (2014)
- [2] L. Gauvin, A. Panisson, A. Barrat, C. Cattuto, *Activity clocks : spreading dynamics in empirical temporal networks of human contacts*, Scientific Reports **3**, (2013)
- [3] L. Gauvin, A. Vignes and J.-P. Nadal, *Modeling urban housing market dynamics : can the socio-spatial segregation preserve some social diversity?*, Journal of Economic Dynamics and Control **37**, 1300–1321, (2013)
- [4] L. Gauvin, J.-P. Nadal, J. Vannimenus, *Schelling segregation in an open city : a kinetically constrained Blume-Emery-Griffiths spin-1 system*, Phys. Rev. E **81**, 066120 (2010)
- [5] L. Gauvin, J. Vannimenus, J.-P. Nadal, *Phase diagram of a Schelling segregation model*, Eur. Phys. J. B - Condensed Matter and Complex Systems **70**, 293- 304 (2009)

### Conference Proceedings

- [6] A. Panisson, L. Gauvin, M. Quaggiotto, C. Cattuto, *Mining Time-resolved Topical Activity in Microblog Streams*, Making Sense of Microposts (Best paper award), World Wide Web Conference 2014
- [7] A. Panisson, L. Gauvin, A. Barrat, C. Cattuto, *Fingerprinting temporal networks of close-range human proximity*, Workshop Permoby in international conference on Pervasive Computing and Communications 2013

- [8] L. Gauvin, A. Vignes and J. -P. Nadal, *Modeling urban housing market dynamics : can the socio-spatial segregation preserve some social diversity ?*, (version courte du papier JEDC) in International Conference on Complex Systems 2011
- [9] L. Gauvin, J.-P. Nadal, J. Vannimenus, *Schelling's segregation model for an open city : emergence of physical frontiers from a socio-spatial dynamics*, in European Conference on Complex Systems 2010
- [10] L. Gauvin, J. Vannimenus, J.-P. Nadal, *Phase diagram of a Schelling segregation model*, in European Conference on Complex Systems 2009

#### Thesis

L. Gauvin, *Modélisation de systèmes socio-économiques à l'aide des outils de physique statistique*, PhD Thesis, Université Pierre et Marie Curie, Paris

#### Science popularization

L. Gauvin, J.-P. Nadal *Modéliser, comprendre et combattre la ségrégation sociale*, blog M $\alpha$ thématiques de la planète Terre, <http://mpt2013.fr/modeliser-comprendre-et-combattre-la-segregation-sociale/>

#### Publications in preparation

L. Gauvin, A. Panisson, A. Barrat, C. Cattuto, *Revealing latent factors of temporal networks for mesoscale intervention in epidemic spread*

L.M. Alessandretti, M. Karsai, L. Gauvin, *Extracting latent structures in multiplex networks of public transportation*

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### Talks and conferences attended

#### As an invited speaker

- 6 July 2013 Talk in the colloquium *Understanding Urban Conflicts*, Université de Paris Panthéon-Sorbonne, France
- 30 – 31 May 2011 Talk in the colloquium *Mathematical Sciences to the proof of Human & Social Sciences* - Université Paris Panthéon-Sorbonne
- 1 - 3 Sep. 2010 Talk at the *Optimal transport and Kinetics Applied to Socio-Economics conference*- Université Toulouse 1, Toulouse

#### Talks at conferences

- Jan. 2015 Talk at *NetSci-X*, Rio, Brasil
- Sep. 2014 Talk at *European Conference on Complex Systems*, Lucca, Italy
- 4 June 2014 Talk in the *International School and Conference on Network Science (NetSci)*, Berkeley, USA
- 20 Sep. 2013 Talk in the Social Systems, Economics and Finance track, *European Conference on Complex Systems*, Barcelona, Spain
- 19 Sep. 2013 Talk in the satellite Temporal Networks in Human Dynamics , *European Conference on Complex Systems*, Barcelona, Spain
- 18 Sep. 2013 Talk in the satellite Dynamics On and Of Complex Networks, *European Conference on Complex Systems*, Barcelona, Spain

- 27 – 28 June 2013 Talk in the symposium *Complexity in social systems : from data to models*, Université de Cergy-Pontoise, France
- 3 – 7 June 2013 Talk in the *International School and Conference on Network Science (NetSci)*, Copenhagen, Denmark
- 3 – 7 Sep. 2012 Talk in the *European Conference on Complex Systems* - Université Libre de Bruxelles, Belgique
- 12 – 16 Sep. 2011 Talk in the *European Conference on Complex Systems* - University of Vienna, Autriche
- 26 – 1er July 2011 Talk in the *International Conference on Complex Systems* - Boston, USA
- 13 - 17 Sep. 2010 Talk in the *European Conference on Complex Systems* - ISCTE – Lisbon University Institute, Portugal
- 21 - 25 Sep. 2009 Talk in the *European Conference on Complex Systems* - University of Warwick, Royaume-Uni

#### [Talks at working groups](#)

- Jan. 2015 Seminar at *IMERA*, Marseille, France
- 22 May 2014 Seminar at *IXXI* (Institut des Systèmes Complexes de la région Rhône-Alpes)
- 6 Déc. 2013 Seminar in the team *Statistique, Analyse, Modélisation Multidisciplinaire* - Université Paris 1 Panthéon-Sorbonne, Paris
- 17 May 2013 Seminar at *IXXI* (Institut des Systèmes Complexes de la région Rhône-Alpes)
- March 2013 Seminar in the team *Statistique, Analyse, Modélisation Multidisciplinaire* - Université Paris 1 Panthéon-Sorbonne, Paris
- 28 Sep. 2011 Seminar at the *Centre de Physique Théorique* - Université Aix-Marseille II, Marseille
- 24 May 2011 Seminar at *Institute for Scientific Interchange* - Turin, Italie
- 3 Feb. 2011 Seminar at *ERMES, Equipe de Recherche sur les Marchés, l'Emploi et la Simulation* - Université Panthéon-Assas, Paris
- 27 Apr. 2010 Seminar at the *Laboratoire Mathématiques et Applications, Physique Mathématique* - Université d'Orléans
- 29 Jan. 2010 Seminar at the *Journées de Physique Statistique* - ESPCI, Paris
- 21 Jan. 2010 Seminar at the *Laboratoire de Physique Théorique* - University Paris XI, Orsay

#### [Attendance of Workshop and Summer school](#)

- April 2014 *World Wide Web Conference 2014*, Seoul, Corea
- 21 Nov. 2013 Colloque La Politique des Données Personnelles : Big Data ou Contrôle Individuel à l'ENS Lyon
- 27 Sep. 2013 Workshop Tensor Methods for Machine Learning lors de l'*European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases*, Prague

#### [Posters](#)

- 12 – 16 Sep. 2011 *European Conference on Complex Systems* - University of Vienna, Austria

21 - 25 Sep. *European Conference on Complex Systems* - University of Warwick, United Kingdom  
2009

6 - 10 July *Congrès Général de la Société Française de Physique* - école Polytechnique, Palaiseau,  
2009 France

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## Research projects

March– June **Study of the Euler-Poincaré characteristic and Betti numbers of the Potts**  
2006 **Model** at the Centre de Physique Théorique – Marseille, France

Supervisors Daniel Gandolfo and Jean Ruiz

Jan. – Apr. **Search for the Higgs Boson at the Tevatron Collider** at the High Energy Physics  
2005 department, Imperial College – London, UK

Supervisor Michele Petteni

June – July **Modelling the Cosmic Microwave Background Temperature Spectra** at the  
2004 Laboratoire de l'Accélérateur Linéaire – Orsay, France

Responsable Stéphane Plaszczyński