

Curriculum Vitæ

Edward Laurence
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Education

Ph.D physics, *Université Laval*, 2016 - [2019]

Supervisors : Pr Louis J. Dubé et Patrick Desrosiers Ph.D

M.Sc. physics, *Université Laval*, 2014 - 2016

Title : COMPLEX NETWORKS AND CONNECTOMIC : FROM HIERARCHY TO FUNCTIONS

Supervisors : Pr. Louis J. Dubé, Patrick Desrosiers Ph.D and Pr. Daniel Côté

B.Sc. physics (Specialisation in theoretical physics), *Université Laval*, 2011 - 2014

Work experience

Graduate teaching assistant (Université Laval)

1. PHY-2502 DYNAMIQUE NON LINÉAIRE, CHAOS ET COMPLEXITÉ (*Non-linear dynamics, chaos and complexity*) - Winter 2017 and 2015
under the supervision of Pr. Louis J. Dubé
2. PHY-3500 PHYSIQUE NUMÉRIQUE (*Numerical physics*) - Winter 2016
under the supervision of Pr. Philippe Després
3. PHY-3000 PHYSIQUE STATISTIQUE (*Statistical physics*) - Fall 2015 and 2014
under the supervision of Pr. Louis J. Dubé

Undergraduate research assistant, Groupe de recherche Dynamica, under the supervision of Pr. Louis J. Dubé, *Université Laval*, Summer 2013

Undergraduate research assistant, Eau Terre Environnement, under the supervision of Pr. Alain Mailhot, *Institut National de la Recherche Scientifique (INRS)*, 2012 - 2013

Awards

Graduate research award (15 000\$), *Fond de recherche Nature et technologies (FRQNT)*, 2015-2016

Second prize (200\$), *Concours d'idées d'entreprises 2015 (Entrepreneuriat Ulaval)*, 2015

Undergraduate student research award (4 500\$), *Natural Sciences and Engineering Research Council of Canada (NSERC)*, 2012

Franco-Rasetti scholarship (1 000\$), *Département de physique, de génie optique et d'optique*, Université Laval, 2011

Outstanding Poster Award, *9th International School and Conference on Network Science*, Berkeley, 2014

Third place for oral, *Canadian Undergraduate Physics Conference*, Vancouver, 2012

Participation to Quebec's final, *Le Championnat International des Jeux Mathématiques et Logiques*, 2012

Participation to Quebec's semi-final, *Le Championnat International des Jeux Mathématiques*

et Logiques, 2010, 2011, 2014

Other activities, competences and interests

Volunteering and involvement

Violinist for patients at Saint-François d'Assise Hospital (Music therapy), 2015 - present

Tutor in physics and mathematics at Collège François-Xavier-Garneau, 2009-2014

Chief editor of the physics students yearbook (100 pages), 2014

Director of physics students newspapers, 2013-2014

Volunteer for the *promotional activities of Université Laval*, for *Coupe de Sciences*, for *Expo-Science* and for *Jeux Photoniques*, 2009-2015

Competences

Languages : French, English and basic spanish

Informatics : C/C++, Python, Matlab/GNU Octave, GNU/Linux, R, L^AT_EX, Swift, HTML/CSS, Django, MySQL

Interests

Informatics : Mobile developpement (iOS)

Sports : Basket-Ball, Running, Squash

Music : Violin (orchestra member and volunteer for music therapy), accoustic guitar and Ukulele

Scientific contributions

Papers in refereed journals

1. *Complex networks as an emerging property of hierarchical preferential attachment*
L. Hébert-Dufresne, **E. Laurence**, A. Allard, J.-G. Young and L. J. Dubé, Phys. Rev. E., **92** 062809, 2015
2. *Relationship between surface temperature and extreme rainfalls : a multi-timescale and event-based analysis*
G. Panthou, A. Mailhot, **E. Laurence** et G. Talbot, J. Hydrometeor., **15**, 2014, DOI : 10.1175/JHM-D-14-0020.1

Preprint

1. *Finite size analysis of the detectability limit of the stochastic block model*
J.-G Young, P. Desrosiers, L. Hébert-Dufresne, **E. Laurence** and L. J. Dubé, arXiv, preprint **arXiv :1701.00062**, 2016

Presentations

1. **Ensemble symmetries and the detectability limit of finite size stochastic block models (SINM 2016)** (oral)
J.-G. Young, L. Hébert-Dufresne, **E. Laurence**, P. Desrosiers and L. J. Dubé, 11th International School and Conference on Network Science, Seoul (Korea), 2016
2. **Time-dependent Spatial Growth of Complex Networks** (oral)
C. Murphy, **E. Laurence**, G. St-Onge, J.-G. Young and L. J. Dubé, 11th International School and Conference on Network Science, Seoul (Korea), 2016
3. **Co-evolution of Growth and Dynamics on Network** (poster)
G. St-Onge, **E. Laurence**, C. Murphy, J.-G. Young and L. J. Dubé, 11th International School and Conference on Network Science, Seoul (Korea), 2016
4. **Exact analytical solution of binary dynamics on networks** (poster)
E. Laurence, J.-G. Young, S. Melnik and L. J. Dubé, 10th International School and Conference on Network Science, Saragosse (Spain), 2015
5. **Structural preferential attachment : scale-free benchmark graphs for overlapping community detection algorithms** (poster)
J.-G. Young, L. Hébert-Dufresne, **E. Laurence** and L. J. Dubé, 10th International School and Conference on Network Science, Saragosse (Spain), 2015
6. **Complex networks are an emerging property of hierarchical preferential attachment** (poster)
L. Hébert-Dufresne, **E. Laurence**, A. Allard, J.-G. Young et L. J. Dubé, 9th International School and Conference on Network Science, Berkeley (USA), 2014, [Outstanding Poster Award]
7. **Relationship between surface temperature and extreme rainfalls : a multi-timescale and event-based analysis** (oral)
G. Panthou, A. Mailhot, **E. Laurence**, G. Talbot, GEWEX conference, The Hague (NL), 2014
8. **A hierarchical approach for complex networks** (oral)
E. Laurence, Canadian Undergraduate Physics Conference, Hamilton (ON), 2013
9. **Relationship between surface temperature and rainfall intensities : a multi-timescale and event-based analysis** (oral)
A. Mailhot, **E. Laurence**, 2013 Joint Scientific Congress of the CMOS, CGU and CWRA, Saskatoon (SK), 2013
10. **Étude des relations entre les précipitations extrêmes et la température** (poster)
E. Laurence, A. Mailhot, Colloque la recherche hydrologique au Québec, Québec (QC), 2013
11. **Relationship between surface temperature and extreme rainfalls : a multi-timescale and event-based analysis** (oral)
E. Laurence, Canadian Undergraduate Physics Conference, Vancouver (CB), 2012