Antoine Allard
Curriculum Vitæ

Assistant Professor
Département de physique, de génie physique et d'optique
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Academic Positions

Université Laval — Québec, Canada
Assistant Professor — 2018–present
- ⋆ Sentinelle Nord Research Chair on Applications and Theory of Network Analysis
- ○ Codirector of the Dynamica Research Lab on the structure and the dynamics of complex systems
- ○ Board member of the Centre Interdisciplinaire en Modélisation Mathématique de l'Université Laval (CIMMUL)

University of Vermont — Burlington, USA
External faculty at the Vermont Complex Systems Center — 2021–present

Universitat de Barcelona — Barcelona, Spain
Postdoctoral Fellow — 2018
- ⋆ Awarded the Juan de la Cierva – Incorporación postdoctoral fellowship

Centre de Recerca Matemàtica — Bellaterra, Spain
Senior Research Fellow — 2017

Universitat de Barcelona — Barcelona, Spain
Postdoctoral Fellow — 2014–2016
- ⋆ Awarded the Fonds de recherche du Québec – Nature et Technologies postdoctoral fellowship

Education

Université Laval — Québec, Canada
Ph.D. in Physics — 2009–2014
- ○ Thesis Title: *Percolation sur graphes aléatoires: Modélisation et description analytique*[1]
- ⋆ Awarded the CIHR Frederick Banting and Charles Best Canada Graduate Scholarship
- ⋆ Thesis added to the Board of Honour for receiving the highest overall mark

Santa Fe Institute — Santa Fe, NM, USA
Complex Systems Summer School — 2011

Université Laval — Québec, Canada
M.Sc. in Physics — 2006–2008
- ○ Thesis Title: *Modélisation Mathématique en Epidémiologie par Réseaux de Contacts: Introduction de l'Hétérogénéité dans la Transmissibilité*[2]
- ⋆ Thesis added to the Board of Honour for receiving the highest overall mark

Université Laval — Québec, Canada
B.Sc. in Physics (Theoretical Physics option) — 2003–2006
- ⋆ Rouge et Or Distinction for excellence in academic undergraduate results
- ⋆ Nominated 2003 AESGUL Prize for "Student of the year" (chosen by the peers)

[1] Percolation on random graphs: Modelling and analytical description
[2] Mathematical modelling in contact networks for epidemiology: Introduction of heterogenity in transmissibility.

Funding and Awards

Grants

- Alliance Grant (co-I), *Natural Sciences and Engineering Research Council of Canada*, 2021–2026 (481k$)
- Sentinel North Research Project (co-I), *Canada First Research Excellence Fund*, 2020–2023 (750k$)
- Discovery Grant (PI), *Natural Sciences and Engineering Research Council of Canada*, 2019–2024 (157k$)
- Sentinelle Nord Research Chair on Applications and Theory of Network Analysis (PI), *Canada First Research Excellence Fund*, 2018–2023 (500k$)

Fellowships

- Juan de la Cierva – Incorporación (postdoctoral fellowship), *Ministerio de Economía, Industria y Competitividad de España*, 2017–2019
- Postdoctoral Fellowship, *Fonds de recherche du Québec – Nature et Technologies*, 2014–2016
- Frederick Banting and Charles Best Canada Graduate Scholarships - Doctoral Awards, *Canadian Institutes of Health Research*, 2009–2012
- Doctoral Research Scholarship, *Fonds de recherche du Québec – Nature et Technologies*, 2008 (declined)
- Doctoral Research Scholarship, *Fondation de l'Université Laval*, 2008 (declined)
- Undergraduate Student Research Award, *Natural Sciences and Engineering Research Council of Canada*, 2006
- Undergraduate Student Research Award, *Natural Sciences and Engineering Research Council of Canada*, 2005

Other Recognitions

- 2021 ADEPUL Prize for "Teacher of the year" (elected by the undergraduate students)
- 2020 ADEPUL Prize for "Teacher of the year" (elected by the undergraduate students)
- Nominated 2020 AESGUL Prize for "Teacher of the year" (elected by the undergraduate students)
- 2019 Star Teacher Prize (based on students evaluation)
- 2019 ADEPUL Prize for "Teacher of the year" (elected by the undergraduate students), 2019
- 2019 AESGUL Prize for "Teacher of the year" (elected by the undergraduate students), 2019
- Board of Honour for a Ph.D.'s Thesis (highest distinction), Faculty of Graduate Studies, Université Laval, 2014
- Nominated 2013 AESGUL Prize for "Staff member of the year" as the Teaching Assistant of PHY-3000 Statistical Physics (elected by the undergraduate students), 2014
- Board of Honour for a Master's Thesis (highest distinction), Faculty of Graduate Studies, Université Laval, 2009
- Third Place at the Student Competition (Poster Presentation), Congress of the Canadian Association of Physicists, Quebec City, 2008
- 2006 AESGUL Prize for "Staff member of the year" as the Teaching Assistant of PHY-1002 Mathematical Physics II (elected by the undergraduate students), 2007
- Rouge et Or Distinction for excellence in academic undergraduate results, 2006
- Nominated 2003 AESGUL Prize for "Student of the year" (chosen by the peers), 2004

Mentoring

Postdoctoral researchers

- Ilhem Bouderbala, *Université Laval*, 2020–present
- Marina Vegué Llorente, *Université Laval*, 2020–present

Ph.D. students

- Charles Murphy, *Université Laval*, 2018–present
- Guillaume St-Onge, *Université Laval*, 2020–present
- Vincent Thibeault, *Université Laval*, 2020–present

M.Sc. students

- Béatrice Désy, *Université Laval*, 2019–present
- Simon Lizotte, *Université Laval*, 2020–present
- Francis Normand[3], *Université Laval*, 2019–present
- Olivier Ribordy, *Université Laval*, 2020–present
- François Thibault, *Université Laval*, 2020–present
- Heikel Jarras[3], *Université Laval*, 2021–present
- Charles Murphy[3], *Université Laval*, 2016–2017 (MSc thesis)

B.Sc. interns

- Olivier Lapointe-Gagné, *Université Laval*, Summer 2021
- Pierre-Luc Larouche, *Université Laval*, Summer 2021
- Jérémi Lesage, *Université Laval*, Summer 2021
- Bastian Raulier, *Université Laval*, Summer-Fall 2020
- Olivier Ribordy, *Université Laval*, Summer 2019
- François Thibault, *Université Laval*, Summer 2019

Bachelor's thesis

- Simon Lizotte, *Université Laval*, 2020
- François Thibault, *Université Laval*, 2020
- Marta Cavero Lázaro[3], *Universitat Autònoma de Barcelona*, 2018

Teaching

Université Laval — Québec, Canada

Teacher

- PHY-7053 Theory of Complex Systems and Networks — 2020–2021
- PHY-3500 Computational Physics — 2020
- PHY-2502 Nonlinear Dynamics, Chaos and Complexity — 2019, 2022
- PHY-7008 Deep Learning: Theory and applications — 2019
- PHY-3000 Statistical Physics — 2018–2021

⋆ Awarded the 2019 Star Teacher prize (based on students evaluation)
⋆ Awarded 2019 AESGUL and 2019 ADEPUL prizes for "Teacher of the year" (elected by the undergraduate students)
⋆ Nominated 2020 AESGUL and awarded 2020 ADEPUL prizes for "Teacher of the year" (elected by the undergraduate students)
⋆ Awarded 2021 ADEPUL prize for "Teacher of the year" (elected by the undergraduate students)

Organizing Activities

Complex Networks Winter Workshop (CNWW) — Québec, Canada

Codirector — January 2021

- In collaboration with Sentinelle Nord and the Vermont Complex Systems Center

Complex Networks Winter Workshop (CNWW) — Québec, Canada

Codirector — December 2019

- In collaboration with Sentinelle Nord and the Vermont Complex Systems Center

International School and Conference on Network Science (NetSci 2019) — Burlington VT, USA

School, Poster Session, and Satellite Co-chair — May 2019

- Organized by the Vermont Complex Systems Center

[3] Acting/acted as co-advisor.

Complex Networks Winter Workshop (CNWW) — Québec, Canada
Codirector — December 2018
- In collaboration with Sentinelle Nord, the Vermont Complex Systems Center and the Network Science Institute

Contagion & Networks (ContNet2018) — Paris, France
Co-organizer — June 2018
- Satellite symposium of the International School and Conference on Network Science (NetSci 2018)
- In collaboration with B. M. Althouse, L. Hébert-Dufresne and S. V. Scarpino

Contagion & Networks (ContNet2017) — Indianapolis IN, USA
Co-organizer — June 2017
- Satellite symposium of the International School and Conference on Network Science (NetSci 2017)
- In collaboration with B. M. Althouse, L. Hébert-Dufresne and S. V. Scarpino

Reviewing Activities

Grant review
- OPUS Grants, *National Science Center, Poland*, 2020
- Discovery Grants, *Natural Sciences and Engineering Research Council of Canada*, 2020

Program committee
- 12th International Conference on Complex Networks (CompleNet 2021)
- 10th International Conference on Complex Networks and their Applications (Complex Networks 2021)
- 1st French Regional Conference on Complex Systems (CCS – France 2021)
- International School and Conference on Network Science (NetSci 2020)
- 11th International Conference on Complex Networks (CompleNet 2020)
- 8th International Conference on Complex Networks and their Applications (Complex Networks 2019)
- 10th Conference on Network Modeling and Analysis (MARAMI 2019)
- International School and Conference on Network Science (NetSci 2019)
- 7th International Conference on Complex Networks and their Applications (Complex Networks 2018)
- International School and Conference on Network Science (NetSci 2018)
- 6th International Conference on Complex Networks and their Applications (Complex Networks 2017)
- Mapping Complexity: Foundations and Applications of Network Geometry workshop (MACFANG-17)
- 5th International Workshop on Complex Networks and their Applications (Complex Networks 2016)

Thesis jury
- Marianne Gratton (Master's thesis, *Université Laval*, 2021)
- Xavier Roy-Pomerleau (Master's thesis, *Université Laval*, 2020)
- Vincent Thibeault (Master's thesis, *Université Laval*, 2020)
- Charles Joachim-Paquet (Master's thesis, *Université Laval*, 2020)
- Edward Laurence (PhD thesis, *Université Laval*, 2020)
- Guillaume St-Onge (PhD exam, *Université Laval*, 2019)
- Edward Laurence (PhD seminar, *Université Laval*, 2018)
- Edward Laurence (PhD exam, *Université Laval*, 2017)
- Jaume Palmer Real (Master's thesis, *Universitat Autònoma de Barcelona*, 2017)

Scholarships

- Byron-T. Darling graduate scholarship, *Université Laval*, 2020
- Larkin Kerwin undergraduate scholarship, *Université Laval*, 2019

Scientific journals

Applied Network Science, Bioinformatics, BMC Medicine, Communications Physics, Discrete Dynamics in Nature and Society, Europhysics Letters, IEEE's Transactions on Network Science and Engineering, Nature Communications, Network Neuroscience, Physica A, Physical Review E, Physical Review Letters, Physical Review X, PLOS Computational Biology, PLOS ONE, PNAS, Science Advances, Scientific Reports

Administrative Activities

Centre Interdisciplinaire en Modélisation Mathématique (CIMMUL) — Université Laval
Board member — 2020–present

Recruitment of a new professor at the Physics Department — Université Laval
Selection committee member — 2021

Reconditioning of the research facilities in the Alexandre-Vachon building — Université Laval
Consulting committee member — 2020

Publications and Presentations

Submitted manuscripts[4]

- *Effects of global change on animal biodiversity in boreal forest landscape: an assemblage dissimilarity analysis*, I. Bouderbala, G. Labadie, J.-M. Leblanc, Y. Boulanger, C. Hébert, P. Desrosiers, **A. Allard** and D. Fortin, bioRxiv
- *The network epidemiology of an Ebola epidemic*, L. Hébert-Dufresne, J.-G. Young, J. Bedson, L. A. Skrip, D. Pedi, M. F. Jalloh, B. Raulier, O. Lapointe-Gagné, A. Jambai, **A. Allard** and B. M. Althouse, arXiv:2111.08686
- *The unintended consequences of inconsistent pandemic control policies*, B. M. Althouse, B. Case, S. V. Scarpino, **A. Allard**, A. M. Berdahl, E. R. White and L. Hébert-Dufresne, medRxiv
- *Limits of individual consent and models of distributed consent in online social networks*, J. Lovato, **A. Allard**, R. Harp and L. Hébert-Dufresne, arXiv:2006.16140
- *The role of directionality, heterogeneity and correlations in epidemic risk and spread*, **A. Allard**, C. Moore, S. V. Scarpino, B. M. Althouse and L. Hébert-Dufresne, arXiv:2005.11283
- *On the accuracy of message-passing approaches to percolation in complex networks*, **A. Allard** and L. Hébert-Dufresne, arXiv:1906.10377

Refereed research publications

- *Predicting the diversity of early epidemic spread on networks*, A. J. Allen, M. C. Boudreau, N. J. Roberts, **A. Allard** and L. Hébert-Dufresne, Phys. Rev. Research (in press)
- *Influential groups for seeding and sustaining nonlinear contagion in heterogeneous hypergraphs*, G. St-Onge, I. Iacopini, V. Latora, A. Barrat, G. Petri, **A. Allard** and L. Hébert-Dufresne, Commun. Phys. 5, 25 (2022)
- *Universal nonlinear infection kernel from heterogeneous exposure on higher-order networks*, G. St-Onge, H. Sun, **A. Allard**, L. Hébert-Dufresne and G. Bianconi, Phys. Rev. Lett. 127, 158301 (2021)

[4] Students or postdoctoral researchers who worked under my supervision are underlined.

- *Deep learning of contagion dynamics on complex networks*, C. Murphy, E. Laurence and **A. Allard**, Nat. Commun. 12, 4720 (2021)
  - ⋆ Featured in Nature communications' Editors' Highlights.
- *Social confinement and mesoscopic localization of epidemics on networks*, G. St-Onge, V. Thibeault, **A. Allard**, L. J. Dubé and L. Hébert-Dufresne, Phys. Rev. Lett. 126, 098301 (2021)
- *Master equation analysis of mesoscopic localization in contagion dynamics on higher-order networks*, G. St-Onge, V. Thibeault, **A. Allard**, L. J. Dubé and L. Hébert-Dufresne, Phys. Rev. E 103, 032301 (2021)
- *Beyond R_0: Heterogeneity in secondary infections and probabilistic epidemic forecasting*, L. Hébert-Dufresne, B. M. Althouse, S. V. Scarpino and **A. Allard**, J. R. Soc. Interface 17, 20200393 (2020)
- *Superspreading events in the transmission dynamics of SARS-CoV-2: opportunities for interventions and control* B. M. Althouse, E. A. Wenger, J. C. Miller, S. V. Scarpino, **A. Allard**, L. Hébert-Dufresne and H. Hu, PLOS Biol. 18, e3000897 (2020)
- *Geometric renormalization unravels self-similarity of the multiscale human connectome*, M. Zheng, **A. Allard**, P. Hagmann, Y. Alemán-Gómez and M. Á. Serrano, Proc. Natl. Acad. Sci. USA 117, 20244 (2020)
- *Navigable maps of structural brain networks across species*, **A. Allard** and M. Á. Serrano, PLOS Comput. Biol. 16, e1007584 (2020)
- *Genome-scale modeling of metabolism in the polar diatom Fragilariopsis cylindrus underscores the strong robustness of growth rate in response to cellular perturbations*, M. Lavoie, B. Saint-Béat, J. Strauss, S. Guérin, **A. Allard**, S. V. Hardy, A. Falciatore and J. Lavaud, Biology 9, 30 (2020)
- *Mercator: uncovering faithful hyperbolic embeddings of complex networks*, G. García-Pérez[5], **A. Allard**[5], M. Á. Serrano and M. Boguñá, New J. Phys. 21, 123033 (2019)
- *Smeared phase transitions in percolation on real complex networks*, L. Hébert-Dufresne and **A. Allard**, Phys. Rev. Research 1, 013009 (2019)
- *Percolation and the effective structure of complex networks*, **A. Allard** and L. Hébert-Dufresne, Phys. Rev. X 9, 011023 (2019)
- *Geometric evolution of complex networks with degree correlations*, C. Murphy, **A. Allard**, E. Laurence, G. St-Onge, and L. J. Dubé, Phys. Rev. E 97, 032309 (2018)
- *The risk of sustained sexual transmission of Zika is underestimated*, **A. Allard**[5], B. M. Althouse[5], L. Hébert-Dufresne[5], and S. V. Scarpino[5], PLOS Pathog. 13, e1006633 (2017)
- *Asymmetric percolation drives a double transition in sexual contact networks*, **A. Allard**, B. M. Althouse, S. V. Scarpino, and L. Hébert-Dufresne, Proc. Natl. Acad. Sci. USA 114, 8969–8973 (2017)
- *Strategic tradeoffs in competitor dynamics on adaptive networks*, L. Hébert-Dufresne, **A. Allard**, P.-A. Noël, J.-G. Young, and E. Libby, Sci. Rep. 7, 7576 (2017)
- *The geometric nature of weights in real complex networks*, **A. Allard**, M. Á. Serrano, G. García-Pérez, and M. Boguñá, Nat. Commun. 8, 14103 (2017)
  - ⋆ Featured in Nature Physics' Research highlights.
  - ⋆ Featured in Nature Communications' Web collection on complex systems.
- *The effect of a prudent adaptive behaviour on disease transmission*, S. V. Scarpino, **A. Allard**, and L. Hébert-Dufresne, Nat. Phys. 12, 1042–1046 (2016)
  - ⋆ Featured in Nature Physics' News & Views.

[5] Equal contribution.

- *The hidden hyperbolic geometry of international trade: World Trade Atlas 1870–2013*, G. García-Pérez, M. Boguñá, **A. Allard**, and M. Á. Serrano, Sci. Rep. 6, 33441 (2016)
- *Growing networks of overlapping communities with internal structure*, J.-G. Young, L. Hébert-Dufresne, **A. Allard**, and L. J. Dubé, Phys. Rev. E 94, 022317 (2016)
- *Multi-scale structure and topological anomaly detection via a new network statistic: The onion decomposition*, L. Hébert-Dufresne, J. Grochow, and **A. Allard**, Sci. Rep. 6, 31708 (2016)
- *Constrained growth of complex scale-independent systems*, L. Hébert-Dufresne, **A. Allard**, J.-G. Young, and L. J. Dubé, Phys. Rev. E 93, 032304 (2016)
  ⋆ Featured in the *Editors' Suggestions* section of Phys. Rev. E.
- *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)
- *General and exact approach to percolation on random graphs*, **A. Allard**, L. Hébert-Dufresne, J.-G. Young, and L. J. Dubé, Phys. Rev. E 92, 062807 (2015)
- *A shadowing problem in the detection of overlapping communities: Lifting the resolution limit through a cascading procedure*, J.-G. Young, **A. Allard**, L. Hébert-Dufresne, and L. J. Dubé, PLOS ONE 10, e0140133 (2015)
- *Spreading dynamics on complex networks: a general stochastic approach*, P.-A. Noël, **A. Allard**, L. Hébert-Dufresne, V. Marceau, and L. J. Dubé, J. Math. Biol. 69, 1627–1660 (2014)
- *A system-level model for the microbial regulatory genome*, A. N. Brooks, D. J. Reiss, **A. Allard**, W.-J. Wu, D. M. Salvanha, C. L. Plaisier, S. Chandrasekaran, M. Pan, A. Kaur, and N. S. Baliga, Mol. Syst. Biol. 10, 740 (2014)
- *Coexistence of phases and the observability of random graphs*, **A. Allard**, L. Hébert-Dufresne, J.-G. Young, and L. J. Dubé, Phys. Rev. E 89, 022801 (2014)
  ⋆ Featured in the *Editors' Suggestions* section of Phys. Rev. E.
- *Percolation on random networks with arbitrary k-core structure*, L. Hébert-Dufresne[5], **A. Allard**[5], J.-G. Young, and L. J. Dubé, Phys. Rev. E 88, 062820 (2013)
- *Global efficiency of local immunization of complex networks*, L. Hébert-Dufresne[5], **A. Allard**[5], J.-G. Young[5], and L. J. Dubé, Sci. Rep. 3, 2171 (2013)
- *Bond percolation on a class of correlated and clustered random graphs*, **A. Allard**, L. Hébert-Dufresne, P.-A. Noël, V. Marceau, and L. J. Dubé, J. Phys. A 45, 405005 (2012)
- *Exact solution of bond percolation on small arbitrary graphs*, **A. Allard**, L. Hébert-Dufresne, P.-A. Noël, V. Marceau, and L. J. Dubé, EPL 98, 16001 (2012)
- *Propagation on networks: An exact alternative perspective*, P.-A. Noël, **A. Allard**, L. Hébert-Dufresne, V. Marceau, and L. J. Dubé, Phys. Rev. E 85, 031118 (2012)
- *Structural preferential attachment: Stochastic process for the growth of scale-free, modular and self-similar systems*, L. Hébert-Dufresne, **A. Allard**, V. Marceau, P.-A. Noël, and L. J. Dubé, Phys. Rev. E 85, 026108 (2012)
- *Structural preferential attachment: Network organization beyond the link*, L. Hébert-Dufresne, **A. Allard**, V. Marceau, P.-A. Noël, and L. J. Dubé, Phys. Rev. Lett. 107, 158702 (2011)
- *Modeling the dynamical interaction between epidemics on overlay networks*, V. Marceau, P.-A. Noël, L. Hébert-Dufresne, **A. Allard**, and L. J. Dubé, Phys. Rev. E 84, 026105 (2011)
- *Propagation dynamics on networks featuring complex topologies*, L. Hébert-Dufresne, P.-A. Noël, V. Marceau, **A. Allard**, and L. J. Dubé, Phys. Rev. E 82, 036115 (2010)

- *Adaptive networks: Coevolution of disease and topology*, V. Marceau, P.-A. Noël, L. Hébert-Dufresne, **A. Allard**, and L. J. Dubé, Phys. Rev. E 82, 036116 (2010)

- *Heterogeneous bond percolation on multitype networks with an application to epidemic dynamics*, **A. Allard**, P.-A. Noël, L. J. Dubé, and B. Pourbohloul, Phys. Rev. E 79, 036113 (2009)

Book chapters

- *A new approach to international trade from Network Geometry: The World Trade Atlas 1870-2013*, G. García-Pérez, M. Boguñá, **A. Allard**, and M. Á. Serrano, in *Networks of International Trade and Investment: Understanding globalization through the lens of network analysis*, S. Gorgoni, A. Amighini, and M. Smith (Eds.), Vernon Press, pp. 71–112 (2018) ISBN:978-1-62273-065-0

- *The Social Zombie: Modelling undead outbreaks on social networks*, L. Hébert-Dufresne, P.-A. Noël, V. Marceau, **A. Allard**, and L. J. Dubé, in *Mathematical Modelling of Zombies*, R. Smith? (Ed.), University of Ottawa Press, pp. 149–170 (2014) ISBN:978-0-77662-210-1

Perspectives, opinions and outreach publications

- *La modélisation mathématique pour cartographier le complexe et l'inconnu*[6], **A. Allard**, L. J. Dubé and L. Hébert-Dufresne, ACFAS Magazine (September 2020)

- *COVID-19: Cancel your next large event, and tell your friends to cancel theirs*, G. St-Onge, V. Thibeault, **A. Allard**, L. J. Dubé and L. Hébert-Dufresne, `medium.com` (March 2020)

- *Des ponts d'Euler à la grippe aviaire: De l'abstraction mathématique à la réalité sociale des épidémies*[7], **A. Allard**, P.-A. Noël, and L. J. Dubé, Accromath 4 (winter-spring 2009)

Selected presentations[8]

- *Realistic clustering patterns in directed geometric networks* (oral), Networks 2021: A Joint Sunbelt and NetSci Conference, Washington DC, USA, 2021

- *Deep learning of dynamical epidemic processes on complex networks* (oral), Vermont Complex Systems Center, University of Vermont, Burlington, USA, 2019

- *Deep learning of dynamical epidemic processes on complex networks* (oral), Universitat de Barcelona Institute of Complex Systems, Barcelona, 2019

- *Chaire de recherche Sentinelle Nord en modélisation mathématique des systèmes et des réseaux complexes* (oral), Official inauguration of the latest Sentinelle Nord research chairs, Lévis, 2019

- *An introduction to the methodologies for studying complex networks* (oral), Scientific retreat of the thematic project 1 (TP1) – Sentinelle Nord, Forêt Montmorency, Québec, 2019

- *Three tales about percolation on real complex networks* (oral), International Conference on Complex Networks (CompleNet 2019), Tarragona, Spain, 2019

- *Modeling with Random Networks* (oral, Joint talk with L. Hébert-Dufresne), Complex Networks Winter Workshop (CNWW18), Québec, Québec, 2018

- *Les réseaux complexes: un paradigme unificateur et transformateur pour comprendre la relation dynamique/structure des systèmes complexes* (oral), Centre de recherche CERVO, Québec, Québec, 2018

[6] Mapping the complex and the unknown with mathematical modeling
[7] From Euler bridges to avian flu: From mathematical abstraction to the social reality of epidemics.
[8] Invited presentations are denoted with a filled circle.

- *Les réseaux complexes: un paradigme unificateur et transformateur pour comprendre la relation dynamique/structure des systèmes complexes* (oral), Institut de biologie intégrative et des systèmes, Université Laval, Québec, Québec, 2018
- *The hyperbolic brain: A geometric approach to network neuroscience* (oral), Sentinelle Nord Annual Meeting, Québec, Québec, 2018
  - *Effective structure of complex networks and a second look at message passing approaches* (poster), International School and Conference on Network Science (NetSci 2018), Paris, France, 2018
  - *Double epidemic threshold and the potential of the Zika virus as a sustained STI* (oral), BIFI International Conference, Zaragoza, Spain, 2018
  - *The effective navigable geometry of the brain* (oral), Mapping Complexity: Foundations and Applications of Network Geometry workshop (MACFANG-17), Barcelona, Spain, 2017
  - *The effective navigable geometry of the brain* (oral), International School and Conference on Network Science (NetSci 2017), Indianapolis, Indiana, 2017
- *Towards an effective structure of complex networks and its contributions to epidemiology and neuroscience* (oral), Network Science Institute, Boston, Massachusetts, 2017
  - *The geometric nature of weights in real complex networks* (oral), Conference on Complex Systems (CCS 2016), Amsterdam, The Netherlands, 2016
  - *The hidden geometry of complex weighted networks* (oral), 8th International Conference on Discrete Models of Complex Systems (Summer Solstice 2016), Aveiro, Portugal, 2016
  - *Unveiling the hidden geometry of weighted networks* (oral), International School and Conference on Network Science (TOPONETS15), Zaragoza, Spain, 2015
- *Exploring the hidden metric space of complex networks* (oral), Santa Fe Institute, Santa Fe, New Mexico, 2015
  - *Percolation on clustered and correlated random graphs: General formalism and applications* (poster), International School and Conference on Network Science (NetSci 2013), Copenhagen, Denmark, 2013
  - *Bond and site percolation on clustered and correlated random graphs* (oral), Joint CRM-Imperial College School and Workshop in Complex Systems, Barcelona, Spain, 2013
  - *Unveiling hidden communities through cascading detection on network structures* (oral), 2nd International Conference on Complex Sciences, Santa Fe, New Mexico, 2012
  - *Exact solution of bond percolation on small arbitrary graphs* (oral), International School and Conference on Network Science (NetSci 2012), Evanston, Illinois, 2012
  - *Using network organization to hinder propagation in structured populations* (poster), International School and Conference on Network Science (NetSci 2012), Evanston, Illinois, 2012
  - *Multitype modular networks as a model of clustered social networks* (poster), International School and Conference on Network Science (NetSci 2010), Boston & Cambridge, Massachusetts, 2010
  - *Heterogeneous Bond Percolation on Complex Networks: Application to Epidemiology* (poster), Canadian Association of Physicists Congress, Québec City, 2008
    ⋆ Third place at the student competition.