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CV (long version)

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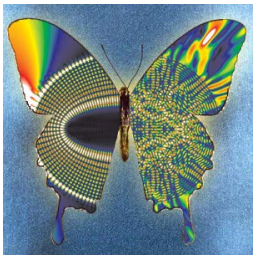

Upon the wings of a butterfly,
Chaos and Order will forever lie.

— *Québec / Freiburg, 2022* —

Contents

SYNOPSIS (in numbers and a few words)

III. Pedagogical Experience (40 years of teaching)	Germany (Freiburg), France (Bordeaux, Paris), Canada (Québec)
III.A University Teaching	**24 courses**: 13 undergraduate (4 new) + 11 graduate (10 new) **9-10** *Prizes for Excellence in Teaching (2000-12)*
III.B Direction of (Master) and [Doctor] Theses	**45** (1984-2020): (32) + [13] **11** *Board of Honour of UL Graduate School (2008-22): 4 PhD, 7 MSc* **2** *James S. McDonnell Post-Doctoral Fellows (2014 et 2018)* **1** *Career Prize UL - mentoring of graduate research (2014-15)*
III.C Thesis Examiner	**33** (1986-2015)
IV. Scientific Publications	
published refereed articles	**103** (1975-2021)
livre + brevet	**2**: 1 + 1
V. Conference / Workshop Contributions	
oral + posters + articles	**143** (1975-2020): 33 + 92 + 18
VI. Invited Presentations	**98** (1978-2019)
VII. Professional Activities	
VII.A Participations at Scientific Meetings	**87** (1975-2019)
VII.B Research Periods at Foreign Institutes	**18** (1981-2016) [Germany (9), Argentina (1), Belgium (1), Spain (1), France (6)]
VII.C Technology Transfer	Technologies *DYNAMICOS* Inc. (1997-2002)

I. Curriculum Vitae

Born: yes
Place of birth: Québec, Canada
Nationality: Canadian

I.A *University Degrees*

Period	Degree	University	Subject
1970-1973	**B.Sc.**	**Université Laval** May 1973 (Québec, Canada)	Physics
1973-1974	**M.S.**	**Yale University** May 1974 (Connecticut, USA)	Theoretical Atomic Physics
1974-1978	**Ph.D.**	**Yale Univerity** May 1978 (Connecticut, USA)	Theoretical Atomic Physics [1]
1979-1986	**Dr.rer.nat.habil.** [2]	**Universität Freiburg** May 1986 (Freiburg, Germany)	Theoretical Physics

1: Title of thesis: *Theory of Electron Molecule Interactions: Case Studies* under the supervision of Prof. Arvid Herzenberg

2: Exceptionally, the German doctorate (Dr.rer.nat.) was awarded together with the Habilitation (habil.), an academic degree beyond the Ph.D. that certifies excellence in teaching **and** research.

I.B *Scientific Career*

Period	Position	University
May 1974 - Feb. 1978	**Research Assistant**	**Yale University** Department of Applied Science
March 1978 - Aug. 1979	**Research Associate**	**Oxford University** Theoretical Chemistry Department **Atomic Energy Establishment Harwell** Theoretical Physics Division
Sept. 1979 - Sept. 1983	**Wissenschaflicher Angestellter**	**Universität Freiburg** Fakultät für Physik
Oct. 1983 - May 1986	**Hochschulassistent**	**Universität Freiburg** Fakultät für Physik

I.B *Scientific Career* (cont'd)

Period	Position	University
March 1986 - April 1986	**Professeur Associé**	**Université de Bordeaux I** Laboratoire des Collisions Atomiques
June 1986 - May 1990	**Professeur Agrégé**	**Université Laval** Département de Physique
Oct. 1992 - Sept. 1993	**Professeur des Universités** *(titulaire, 2ème classe)*	**Université de Bordeaux I** Unité de Formation et de Recherche (UFR) de Physique
Sept. 2001 - Aug. 2002	**Professeur Associé** *(full time)*	**Université Pierre et Marie Curie** Unité de Formation et de Recherche (UFR) de Physique
Sept. 2002 - Oct. 2008	**Professeur des Universités** *(titulaire, 1ère classe)*	**Université Pierre et Marie Curie** Unité de Formation et de Recherche (UFR) de Physique
Sept. 2009 - Mai 2011 Sept. 2014 - Dec. 2014	**Directeur des programmes de 2ième-3ième cycles**	**Université Laval** **Faculté des sciences et de génie** Département de Physique, de Génie Physique, et d'Optique
Juin 1990 - Août 2017	**Professeur titulaire*** **/ Full Professor**	**Université Laval** Département de Physique, de Génie Physique, et d'Optique
Sept. 2017 - April 2021	**Affiliated Professor**	**Université Laval** Département de Physique, de Génie Physique, et d'Optique

The **periods** in **blue** correspond to **permanent** appointments.

* **Research Years** (U. Laval): Sept. 1992 – Aug. 1993; Sept. 1999 – Aug. 2000; Sept. 2008 – Aug. 2009; Sept. 2015 – Aug. 2016;
Leave of Absence (U. Laval): Sept. 2001 – Aug. 2003;
Active (!) Retirement since Sept. 2017

I.C *Fellowships and Distinctions*

Yale University Graduate Scholarship
Période: Septembre 1973 - May 1974

Master and Doctoral Scholarship, Post-Doctoral Fellowship
Direction Générale de l'Enseignement Supérieur du Québec
Période: Septembre 1973 - May 1978

NATO Post-Doctoral Fellowship
Natural Sciences Engineering Research Council, Canada
Période: May 1978 - May 1980

6 - 7 Prizes of Teaching Excellence (Enseignement - *professeur étoile*) [1]
Faculté des Sciences et de Génie, Université Laval
Academic Years: 2000-01, 2003-04, *2004-05* [2], 2006-07, 2007-08, 2009-10, 2011-12

3 Prizes of Teaching Excellence (Enseignement - Physics)
Association des étudiants sous-gradués de l'Université Laval (AESGUL)
Category - Enseignant méritant
Academic Years: 2000-01, 2006-07, 2007-08

1 Career Prize - Excellence in Teaching at Université Laval
Category Professor - ***Graduate Research Mentoring*** -
Academic Year: 2014-15

I.D *Professional Affiliations and Responsabilities*

- **scientific societies**

  1977 – American Physical Society (APS), **membre**
  1980 – Canadian Association of Physicists (CAP), **membre**
  1985 – Deutsche Physikalische Gesellschaft (DPG), **membre**
  2007 – Network Science Society (NetSci), **membre**
  2012 – American Association for the Advancement of Science (AAAS), **membre**

[1] The recognition "professeur étoile" has started in Novembre 1999 to acknowledge the teaching quality for the academic year 1998-99. $\mathcal{LJD}$ has been absent in the years 1999-2000, 2001-03, 2008-09, with a last evaluation in 2011-12; in other words, for the period 1998-2012, *i.e.* 14 years, $\mathcal{LJD}$ has been evaluated 10 times and honoured 9-10 times. The year 2005-06 has been the exception.
[2] The date in *italic* is uncertain!?

- **conferences and schools**

  International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC)
  1987-93 **International Committee Member** (canadian representative)
  1989-93 **Executive Committee Member**
  1995 **Scientific Editor** ICPEAC 1995 (Whistler, B.C., Canada)

  XIIIth International Seminar on Ion-Atom Collisions (ISIAC)
  1993 **Scientific Program Committee Member**

  Annual Congress of the CAP
  1996, 1997 **Scientific Program Committee Member**

  Joint APS/AAPT April Meeting together with
  the Canadian, American, and Mexican Physical Societies (CAM'97)
  1996-97 **Scientific Program Committee Member** (canadian liaison officer)

  International Conference on Complex Networks and Their Applications
  2017 (Paris), 2018 (Lyon), 2019 (Cambridge, UK) **program committee**

  2ème Réunion Annuelle de Sentinelle Nord
  2018 **consulting committee** (Québec, PQ, Canada)

  Complex Networks Winter Worshop
  2018 **organisation committee** (Québec, PQ, Canada)

- **external examiner**

  National Sciences and Engineering Research Council (NSERC) of Canada
  National Science Foundation (NSF) (USA)
  Fonds pour la Formation de Chercheurs et l'Aide à la Recherche (FCAR) (Québec)
  Fonds de Recherche - Nature et Technologie (FRQNT)
  NATO Collaborative Research Grants

- **review committees**

  Applied Network Science (Springer), Brain Connectivity (Mary Ann Liebert Inc.)
  Canadian Journal of Physics (CAP), Chaos (AIP), Complexity (Hindawi)
  Discrete Mathematics (Elsevier), Europhysics Letters
  Human Brain Mapping (Wiley)
  IEEE/ACM Networking, Int. J. of Bif. and Chaos, Interface - Royal Soc., Int. J. Biomathematics
  Journal of Physics A, B (IOP), J. Biophotonics, J. Math. Biology
  Nature Physics, Nature Materials
  Physical Review A, E, Letters, Research, X (APS), Physics Letters A,
  Physics Reports (Elsevier Science), Physica Scripta, PLoS One
  Science Reports (Nature Publication)

- **academic and scientific leadership**

1995-97 Chairman, Division of Atomic and Molecular Physics (DAMP) of Canadian Association of Physicists (CAP)

1997-2002 Scientific Director, Technologies *DYNAMICOS* Inc.

1997-2018 Founder and Director, Research Group **Dynamica**

2009-11, 2014 Director of Graduate Programs in Physics, Université Laval

2016-19 Co-Director, Thematic Project 1 of **Sentinel North** Strategy (Canada First Research Excellence Fund and Fonds de recherche du Québec): *Complex Systems: Structure, Function and Interrelationships in the North* [3]

2016-19 Co-Principal Investigator: Sub-Project 1.2 of **Sentinel North** Strategy: *The resilience of complex networks: Identifying critical indicators for efficient targeted interventions* [3]

2016-19 Co-Investigator: Sub-Project 1.1 of **Sentinel North** Strategy: *Network analysis of umbrella and indicator species: Assessing the integrity of northern ecosystems* [3]

2017– Founding Membre: **Centre Interdisciplinaire de Modélisation Mathématique de l'Université Laval** (CIMMUL), research axis *Dynamics of Complex Systems and Complex Networks*

[3] The titles of the thematic research are those of the original proposals.

I.E *Research Interests (past* and **present)**

(chronological order from first to last publications in each topic)

1975-1981 Theory of electron-molecule collisions

(shape and Feschbach resonances, vibrational and rotational excitation, e-polar molecules scattering)

1980-2001 Theory of ion-atom collisions

(perturbation series (Born and CDW), capture, excitation and ionisation, transport in solids)

1997-now Complex Dynamical Systems

(chaos characterisation and control, non-linear time series analysis, dynamical reconstruction, synchronization, dimensional reduction)

2001-2006 Optical Orientation Dynamics in Nematic Liquid Crystals

2001-now Physics at the Service of Health

(studies of dynamical diseases: Parkinson tremors, epilepsy, cardiac arrhythmia; contact network epidemiology: propagation of infectious diseases, containment and intervention scenarios)

2006-2015 Optical Cavity-based Photonics

(chaos in optical systems, ray-wave dualism, micro-lasers and -sensors, e-m wave propagation and optimization in complex medium)

2015-2021 Laser Plasma Physics

(e-m wave propagation of femtosecond high-intensity laser pulses, laser induced periodic structures, laser plasma formation in dielectrics)

2008-now Theory of Complex Networks

(propagation dynamics on networks, adaptive networks, co-evolution of networks and dynamical processes, percolation on networks, network growth, communities detection, network synchronization)

More details of our present *Research Activities* and *Publications* can be found on the Web page of our research group DYNAMICA: **www.dynamica.phy.ulaval.ca**

II. Emergence of Research Excellence: Dynamica

- **Dynamica** (version 1.0): **beginning (1997) to maturation (2017-19)**

  Dynamica, a research group dedicated to the study of complex dynamical systems ... because the world is complex and ever changing.

  Its beginning dates back to the early 90s. If one wishes to give it a birth year, 1997 would be appropriate, when its leading incentives had somewhat crystallized in the mind of its founder and group leader ($\mathcal{LJD}$): the necessity of *thematic renewal*, the importance of *nonlinearity and complexity* in modern science, and the desire to put *Physics at the service of Health*.

  One speaks now of a team of theoreticians involved in different aspects of the broad research theme of the *Dynamics of Complex Systems and Complex Networks*. The developments of novel approaches are based on notions of statistical physics, nonlinear dynamics, mathematical/numerical modelling, and graph/network theory, and its activities extend to topics as varied as the propagation of epidemics (in the widest possible sense), the connectivity of the human brain, or the modelisation of complex photonic systems.

  The choice of research subjects was very much open, answering only to the following edict: "If you know *exactly* where you are heading, this is not cutting edge research. Better leave the topic to a technician, and look further." It is fair to say that the atmosphere in the group has invariably inspired multidisciplinary paths with high societal value.

  The mantra often repeated by Che Guevara, " be realistic, demand the impossible", has always been in our thoughts and has led asymptotically to individual and collective excellence. **Dynamica** has progressively acquired its letters of nobility with the result that it has recruited over the years the best graduating candidates.

  Whereas *complexity* and *complex systems* occupy presently all walks of life, we started, more than 20 years ago, our *transdisciplinary* studies in part to transform the canonical approaches to dynamical disorders (*e.g.* epilepsy, Parkinson tremors, cardia arrhythmia, ...), conscious that the 21st century would be inter-, multi-disciplinary to answer the growing challenges to our health and our environment.

  Under these guiding principles, the research group was particularly well prepared for the **Sentinel North** Strategy (1996-97 onwards) of the Canada First Research Excellence Fund to take a leading rôle in one of the principal thematics, *Complex Systems: Structure, Function and Interrelationships in the North*. This research network found a mature and capable partner in **Dynamica** who could spread its wings and explore new applications: *northern connectomics* no less.

  In the wake of $\mathcal{LJD}$'s retirement in 2017, there has been a progressive shift of leadership until 2019, and **Dynamica** , version 2.0, is presently in the capable hands of Antoine Allard (M.S. 2008, Ph.D. 2014) and Patrick Desrosiers: the future in a renewed form is thereafter guaranteed.

- **DYNAMICA: apprenticeship**

THE COURSE: *Dynamique nonlinéaire, chaos, et complexité* (Nonlinear Dynamics, Chaos, and Complexity) [4] was created in 1997 to answer the need to expose our graduating class of physicists to nonlinear techniques and concepts. To our knowledge, it was (and still is!) the only undergraduate course of the sort in all of canadian universities. Stunning, if one considers that modern science is nourished by nonlinear processes ... It has been a lasting success and essentially all the graduates of our B.Sc. in Physics have attended the course since its inception.

SYMPOSIA **DYNAMICA**: THE COURSE ends with a mini-conference where the students (in pairs) have a chance to present their semester project in a retreat environment conducive to scientific and social exchanges. This (quasi)-unique and memorable experience has marked (in one way or another) 302 participants in the past 12 Editions (1998-2017) [5]. It has shown to be a pedagogical support of the very best kind.

THE COURSE (BIS): To pursue the apprenticeship of the nonlinear at the graduate level, a new course titled *Seminar of Modern Dynamics* (1998-2017) was created. Its pedagogical format was a sequence of challenges (6 overall) of 2 weeks duration. Following a brief theoretical presentation, each challenge consisted of a series of precise tasks to bring the student to complete the theory, to perform the necessary mathematical analysis and numerical simulations, and to produce a complete written report of the findings. This course was quite demanding taking up most of a trimestre (13 weeks) at the rate of 50 to 60 hours/week. The intended goal was to bring rapidly (!) the candidates to a high professional level: honing their writing skills, learning to present their results efficiently and within a given time frame, and improving their analytical and numerical capabilities. This training was a must until 2017 and of formidable efficacy ... training by fire!

DYNAMICA is often found under the following banner [6]

Upon the wings of a butterfly,
Chaos and Order will forever lie.

[4] This is a continuation and improvement of *Introduction à la dynamique* (Introduction to Dynamics) (1988-89) and *Systèmes nonlinéaires et chaos* (Nonlinear Systems and Chaos) (1990-95).

[5] The 13th Edition has taken place in 2019 with 31 participants under the supervision of ANTOINE ALLARD who has now taken up the flame. A 14th Edition should be in the books for 2023.

[6] The image and the text were created and designed by $\mathcal{LJD}$ around 2012 and put together expertly by a former member, PIERRE-ANDRÉ NOËL (M.S. 2006, Ph.D. 2012). Displayed are electro-magnetic eigensolutions in the butterfly wing cavity, a regular one on the left, a chaotic one on the right.

- **Dynamica: Recent Successes and Recognitions**

Un modèle anti-pandémie, Le Fil des Évènements vol. 42, no. 18 (18 January 2007)
Our first efforts to apply the theory of complex networks to the propagation of epidemics, an approach that currently goes under the name *network epidemiology*.

De Facebook aux Misérables, Le Fil des Évènements vol. 47, no. 7 (13 Octobre 2011)
Towards a *universal mecanism for the growth of complex networks*, from the internet to the brain as well as the networks of scientific collaborations and cinematic productions.

Un physicien bien réseauté, Le Fil des Évènements vol. 49, no. 10 (7 Novembre 2013)
Our *first recipient*, Laurent Hébert-Dufresne (M.S. 2011, Ph.D. 2014), of the prestigious post-doctoral fellowship of the James S. McDonnell Foundation, a first for **Dynamica**, for the Physics department, for the Faculty of Science and Engineering (FSG), for Université Laval, for Québec, for Canada ...

Un Lac-Beauportois ira représenter le Canada en Corée du Sud !, L'Echo du Lac (6 May 2016)

The Shape of Randomness Physics Central - Physics Buzz Blog (5 Octobre 2017)
Seeking a higher order description of complex networks, beyond binary interactions. An extension of network science for applications to the microbiome and the brain connectivity (*microbiomics and connectomics reloaded*).

L'univers complexe de Jean-Gabriel Young, Le Fil des Évènements vol. 53, no. 9 (9 Novembre 2017)
Un étudiant au doctorat obtient une bourse postdoctorale prestigieuse, Site de la FSG, UL (9 novembre 2017)
Our *second recipient*, Jean-Gabriel Young (M.S. 2014, Ph.D. 2018), of the prestigious post-doctoral fellowship of the James S. McDonnell Foundation, a second for **Dynamica**, for the Physics department, for the Faculty of Science and Engineering (FSG), for Université Laval, for Québec, for Canada ...

III. Pedagogical Experience: Teaching and Mentoring

III.A *University Teaching*[7]

• **undergraduate courses** •

1. **Theoretikum Physik** (Uni. Freiburg)
   Part 1. Winter 1981-82, 1983-84; Part 2. Winter 1982, 1984
2. **Quantenmechanik** (Uni. Freiburg)
   Part 1. Winter 1979-80, 1980-81, 1982-83; Part 2. Summer 1980, 1981, 1983
3. **Physique de l'Etat Solide** (Uni. Laval) Autumn 1986
4. **Thermodynamique Statistique** (Uni. Laval) Winter 1988-89
5. **Physique du Solide II** (Uni. Bordeaux I) February-May 1993
6. **Physique Mathématique II** (Uni. Laval) Autumn 1995-98, 2000, 2003-07
7. **Evolution des Idées en Physique** (Uni. Laval) Autumn 1997-98
8. **Electrocinétique et Mécanique du Point** (DEUG 1ère année, Uni. Paris VI) 2001-02, 2nd semestre
9. **Mathématiques: Algébre Linéaire** (DEUG 1ère année, Uni. Paris VI) 2002-03, 2nd semestre
10. **Introduction à la Dynamique Nonlinéaire et Chaos**
    – en sciences fondamentales et appliquées –
    (Licence, Uni. Paris VI) 2002-03 (2nd semestre)
11. **a) Introduction à la Dynamique** (Uni. Laval) Winter 1988-89
    b) Systèmes Nonlinéaires et Chaos (Uni. Laval) Winter 1990-92, 1994-95
    c) Dynamique Nonlinéaire, Chaos, et Complexité (Uni. Laval) Winter 1997-99, Autumn 2000, Winter 2004, 2006-08, 2010-11, Autumn 2012, Winter 2015, 2017
12. **Physique Statistique** (Uni. Laval) Autumn 2003-07, 2009-11, Winter 2012-13, Autumn 2013-14, 2016
13. **Physique Numérique** (Uni. Laval) Autumn-Winter 2011-12, Winter 2014

[7] The titles in **bleu** refer to courses created byr $\mathcal{LJD}$. N.B. 6 years dedicated to research without teaching at UL: 1992-93, 1999-2000, 2001-03, 2008-09, 2015-16

- **graduate courses** •

1. **Numerische Methoden in der Theoretischen Physik** (Uni. Freiburg) Winter 1985-86
2. **Klassische Mechanik und Dynamische Systeme** (Uni. Freiburg) Summer 1986
3. **Théorie Quantique des Collisions** (Uni. Laval) Autumn 1987-88, 1990
4. **Physique Statistique Avancée** (Uni. Laval) Autumn 1989, 1991; Winter 1997, 1999, 2004, 2006-07, 2010-11, 2013, Summer 2015, Autumn 2015-16, Winter 2018
5. **Matière et Rayonnement: Introduction à l'Optique Quantique** (Uni. Laval) Winter 1994, 1996, 1998, 2001, 2005, 2008; Summer 2010; Autumn 2014
6. **Séminaire de Dynamique Moderne** (Uni. Laval) Autumn 1998, Winter 2001, Autumn 2004, Summer 2006, Autumn 2006, 2009, 2012-17
7. **Dynamique Nonlinéaire et Chaos: Applications en Physique Atomique et Optique**
   (DEA, Uni. Paris VI) 2001-02, 2002-03 (2nd semestre)
8. **Dynamique des Atomes et des Molécules**
   (DEA, Uni. Paris VI) 2002-03 (1st semestre)
9. **Contrôle et Synchronisation du Chaos**
   – méthodologies, perspectives, et applications –
   (Ecole doctorale de Physique, Uni. Paris VI) 2002-03 (2nd semestre)
10. **Processus Stochastiques en Sciences de la Nature** (Uni. Laval) Winter 2008, Autumn 2013, Eté 2018
11. **Théorie des Systèmes Complexes** (Uni. Laval) Winter 2012, Summer 2015, Winter 2016, Summer 2016

III.B *Direction of Master and Doctor Theses*

32 M.S., 13 Ph.D.

1. **WILL** Uwe (Uni. Freiburg, 1984): (co-direction with R. Bruch)
   Diplomarbeit: "Entwicklung eines Computerprogramms zur Trennung Uberlappender Spektrallinien und Anwendung auf die Bestimmung von relativen Umladungsquerschnitten für die Stoßprozesse $C^{4+} + H_2$ und $C^{4+} + He$."

2. **THUMM** Uwe (Uni. Freiburg, 1985): (co-direction with J. S. Briggs)
   Diplomarbeit: "Projektilanregung in asymmetrischen Ion-Atom Stößen".

3. **MARXER** Hermann (Uni. Freiburg, 1985): (co-direction with J.S. Briggs)
   Diplomarbeit: "Off-shell Coulomb T-Matrix und Wellenfunktionen".

4. **DÖRR** Martin (Uni. Freiburg, 1985): (co-direction with J.S. Briggs)
   Diplomarbeit: "Dichtematrix - Beschreibung des Ladungsaustausches bei schnellen Ion-Atom-Stößen".

5. **PROULX** Daniel (Uni. Laval, 1989):
   MASTER thesis: "Représentation du Continuum dans une Base de Carré Sommable".

6. **CÔTÉ** Robin (Uni. Laval, 1989):
   MASTER thesis: "Phénomènes Critiques et Géométrie Fractale".

7. **ESSIAMBRE** René-Jean (Uni. Laval, 1990): (co-direction with E. Borra)
   MASTER thesis: "Géométrie Fractale et Structure à Grande Echelle de l'Univers".

8. **DUBÉ** Simon (Uni. Laval, 1991):
   MASTER thesis: "Dynamique Complexe en Physique Statistique".

9. **MENSOUR** Boualem (Uni. Laval, 1991):
   MASTER thesis: "Capture Electronique au Moyen d'une Série Coulombienne".

10. **POULIN** Robert (Uni. Laval, 1992):
    MASTER thesis: "Simulations Numériques en Dynamique Analytique".

11. **LEZEAUX** Olivier et **WAGNER** Christiane (Uni. Bordeaux I, 1993):
    Stage de maîtrise de Physique: "Dynamique Non-Linéaire Dissipative: Lorenz et son Attracteur".

12. **BUIL** Stéphanie et **PETIT** Myriam (Uni. Bordeaux I, 1993):
    Stage de maîtrise de Physique: "Dynamique Hamiltonienne: La Présence du Chaos dans le Hamiltonien Hénon-Heiles".

13. **POULIN** Robert (Uni. Bordeaux I, 1993):
    Stage de DEA: "Détermination Numérique des Dimensions Généralisées: Application à la Physique Statistique".

14. **ROBERT** Carl (Uni. Laval, 1995):
    MASTER thesis: "Le Contrôle du Chaos"(83 pages)

15. **POULIN** Robert (Uni. Laval, 1997):
    DOCTOR thesis: "Intégration Symplectique et Etude Dynamique de Systèmes Hamiltoniens" (165 pages)

16. **POURBOHLOUL** Babak (Uni. Laval, 1999):
Doctor thesis: "Control and Tracking of Chaos in Hamiltonian Systems" (136 pages)

17. **BEAULIEU** Frédéric (Uni. Laval, 2000):
Master thesis: "Réduction Non-Linéaire de Bruit et Détection de Non-Stationnarité" (128 pages)

18. **DESPRÉS** Philippe (Uni. Laval, 2000):
Master thesis: "Contrôle et Détection du Chaos" (133 pages)

19. **DOYON** Bernard (Uni. Laval, Septembre 2002):
Doctor thesis: "De l'Importance des Orbites Périodiques: Détection et Applications" (238 pages)

20. **MCDONALD** Greg (Uni. Laval, April 2003):
Master thesis: "Measures of Dynamical Changes: Information Flow and Dynamical Similarity".

21. **SAÏDI** Samir (Uni. Pierre et Marie Curie (Paris VI), January-July 2002):
Stage de DEA: "Transition Régularité-Chaos et Diffusion Anomale dans les Systèmes Hamiltoniens".

22. **SAÏDI** Samir (Uni. Pierre et Marie Curie (Paris VI), Sept. 2002 - Nov. 2005):
Doctor thesis: "Etude d'une Nouvelle Classe de Billards Inhomogènes et Son Apport aux Microcavités Laser" (149 pages)

23. **ST-LOUIS** Pierre-Yves (Uni. Laval, Sept. 2004 - April 2006, interrupted):
Master thesis: "Dynamique Classique des Billards Diélectriques"

24. **PAINCHAUD-APRIL** Guillaume (Uni. Laval, Sept. 2004-06 - January 2014):
Doctor thesis: "Cavités Diélectriques - Formalisme de Diffusion et Applications" (335 pages)

25. **NOËL** Pierre-André (Uni. Laval, May 2005 - Sept. 2006):
Master thesis: "Modèles Epidémiologiques. Applications au Cas du Virus du Nil Occidental" (163 pages)

26. **NOËL** Pierre-André (Uni. Laval, Sept. 2006 - Sept. 2012):
Doctor thesis: "Dynamique Stochastique sur Réseaux Complexes" (218 pages)

27. **ALLARD** Antoine (Uni. Laval, Sept. 2006 - Octobre 2008)
Master thesis: "Modélisation Mathématique en Épidémiologie par Réseaux de Contacts – Introduction de l'Hétérogénéité dans la Transmissibilité" (100 pages)

28. **POIRIER** Julien (Uni. Laval, Sept. 2007 - May 2011):
Master thesis: "Dynamique Classique du Rayonnement Cohérent en Microcavités" et "Contributions au Contrôle des Propriétés d'Émission de Microcavités Diélectriques"

29. **ALLARD** Antoine (Uni. Laval, Sept. 2009 - April 2014):
Doctor thesis: "Percolation sur graphes aléatoires: modélisation et description analytique" (254 pages)

30. **MARCEAU** Vincent (Uni. Laval, Sept. 2009 - August 2011):
Master thesis: "Modélisation de Processus Co-évolutifs sur Réseaux: Applications à l'Épidémiologie" (125 pages)

31. **GAGNON** Denis (Uni. Laval, Sept. 2009 - August 2011):
MASTER thesis: "Modélisation Ondulatoire de Structures Optiques Résonantes: Application aux Microcavités Diélectriques Bidimensionnelles" (121 pages)

32. **HÉBERT-DUFRESNE** Laurent (Uni. Laval, Sept. 2009 - August 2011):
MASTER thesis: "La Structure Communautaire comme Paradigme d'Organisation des Réseaux Complexes" (117 pages)

33. **GAGNON** Denis (Uni. Laval, Sept. 2011 - Nov. 2014):
DOCTOR thesis: "Generalized Lorenz-Mie theory: Application to scattering and resonances of photonic complexes" (181 pages)

34. **HÉBERT-DUFRESNE** Laurent (Uni. Laval, Sept. 2011 - Oct. 2014):
DOCTOR thesis: "On the Growth and Structure of Social Systems following Preferential Attachment" (173 pages)

35. **YOUNG** Jean-Gabriel (Uni. Laval, May 2012 - Dec. 2014):
MASTER thesis: "De la Détection de la Structure Communautaire des Réseaux Complexes" (160 pages)

36. **DUMONT** Joey (Uni. Laval, May 2012 - Oct. 2014): (co-director, Y. Messaddeq, Uni. Laval)
MASTER thesis: "On the Modelization of Optical Devices: From Dielectric Cavities to Radiating Structures" (141 pages)

37. **DÉZIEL** Jean-Luc (Uni. Laval, May 2013 - Sept. 2015): (co-director, Y. Messaddeq, Uni. Laval)
MASTER thesis: "Ablation Laser et Croissance de Réseaux de Surface" (98 pages)

38. **LAURENCE** Edward (Uni. Laval, May 2014 - August 2016): (co-directors, P. Desrosiers et D. Côté, Uni. Laval)
MASTER thesis : "Etudes des Systèmes Complexes - Des Réseaux au Connectome du Cerveau" (112 pages)

39. **YOUNG** Jean-Gabriel (Uni. Laval, May 2014 - Sept. 2018): (co-director, P. Desrosiers, Uni. Laval)
DOCTOR thesis: "Inférence et Réseaux Complexes" (212 pages)

40. **ST-ONGE** Guillaume (Uni. Laval, Sept. 2015 - Nov. 2017):
MASTER thesis : "Dynamique de Propagation sur Réseaux Aléatoires. Caractérisation de la Transition de Phase" (108 pages)

41. **MURPHY** Charles (Uni. Laval, Sept. 2015 - April 2018): (co-director, A. Allard, Uni. Barcelona)
MASTER thesis : "De la Structure Croissante des Réseaux Complexes. Approche de la Géométrie des Réseaux" (111 pages)

42. **DÉZIEL** Jean-Luc (Uni. Laval, Sept. 2015 - Dec. 2020): (co-director, C. Varin, Cégep de l'Outaouais)
DOCTOR thesis: "Formation et auto-organisation de plasma induit par laser dans un milieu diélectrique" (176 pages)

43. **LAURENCE** Edward (Uni. Laval, May 2016 - Sept. 2020): (co-director, P. Desrosiers, Uni. Laval)
DOCTOR thesis: "La Résilience des Réseaux Complexes" (176 pages)

44. **ROY-POMERLEAU** Xavier (Uni. Laval, Sept. 2017 - August 2020): (co-director, P. Desrosiers, Uni. Laval)

Master thesis: "Inférence d'interactions d'ordre supérieur et de complexes simpliciaux à partir de données de présence/absence" (154 pages)

45. **THIBEAULT** Vincent (Uni. Laval, May 2017 - July 2020): (co-director, P. Desrosiers, Uni. Laval)
Master thesis : "Réduire la dimension des systèmes complexes: un regard sur l'émergence de la synchronisation" (200 pages)

46. **ST-ONGE** Guillaume [8] (Uni. Laval, Jan. 2018 - May 2020): (co-director, L. Hébert-Dufresne, Uni. Vermont)
Doctor thesis: "Processus de contagion sur réseaux complexes au-delà des interactions dyadiques" (201 pages)

[8] Following the retirement of $\mathcal{LJD}$, the supervision of the doctoral research has been taken over by A. Allard / L. Hébert-Dufresne. The graduation has been successfully completed in May 2022.

III.C *Thesis Examiner* [9]

12 M.S., 21 Ph.D.

1. **ROY** Pascale, Ph.D.:
"Etude des Etats de Valence de CO_2^+ et de CS_2^+ par Photoionisation au Moyen du Rayonnement Synchrotron"
(Département de Physique, Université Laval, 1986).

2. **TREMBLAY** Julien, M.S.:
"Réalisation d'un Montage Expérimental pour l'Analyse de la Photofragmentation"
(Département de Physique, Université Laval, 1987).

3. **MOREAU** Jean-Pierre, Ph.D.:
"Nouveaux Développements en Spectroscopie Laser avec Faisceaux d'Ions Rapides"
(Département de Physique, Université Laval, 1988).

4. **DUBÉ** Denis, Ph.D.:
"Contribution Expérimentale à l'Etude des Résonances dans les Collisions Electroniques sur les Gaz Rares"
(Département de Physique, Université Laval, 1988).

5. **BRIÈRE** Jean-François, M.S. :
"Etude de Diffusion dans le Modèle de Schwinger Utilisant le Réseau en Cône-Lumière"
(Département de Physique, Université Laval, 1989).

6. **MARRIOTT** Christopher, Ph.D.:
"Bifurcation and Chaotic Phenomena in an Acoustooptic Bistable Device with Delayed Feedback"
(Département de Physique, Université Laval, 1989).

7. **BÉRUBÉ** Dominique, M.S.:
"Application de la Quantification Stochastique en Théorie des Champs sur un Réseau d'Impulsions"
(Département de Physique, Université Laval, 1989).

8. **TREMBLAY** Julien, Ph.D.:
"Utilisation de la Dissociation Laser pour l'Etude de Différentes Espèces Atomiques et Moléculaires"
(Département de Physique, Université Laval, 1989).

9. **PÉPIN** Christian, Ph.D.:
"Etude du Comportement Critique de Mélanges Binaires et d'une Microémulsion par la Méthode d'Indice de Réfraction"
(Département de Physique, Université Laval, 1990).

10. **BOUCHARD** Robert, M.S.:
"Calcul des Facteurs de Landé dans le Complexe Triplet ^3D de l'Hydrogène Moléculaire"
(Département de Physique, Université Laval, 1990).

11. **HAROUN** Mohammed-Yazid, M.S.:
"Spectroscopie des Ions Moléculaires N_2^+ et O_2^+ réalisée par Excitation dans un Processus à Décharge rès Basse Pression Couplée à un Spectromètre à Transformée de Fourier"
(Département de Physique, Université Laval, 1991).

[9] This list does NOT include the students under my direct supervision.

12. **RONEY** Alan J., M.S.:
"Etude de la Distribution en Energie Cinétique des Fragments H Issus de la Dissociation de H_2, à l'aide d'une simulation Basée sur la Méthode de Monte-Carlo"
(Département de Physique, Université Laval, 1992).

13. **DESPINEY** Isabelle, Ph.D.:
"Mélange Cohérent et Mélange Collisionnel des Etats de Structure Fine d'Ions Lourds Rapides en Milieux Condensés"
(Groupe de Physique des Solides, Université Pierre et Marie Curie, 1994)

14. **DELISLE** Claude, M.S.:
"Mesure de l'Energie Cinétique Acquise par les Fragments Lors de la Dissociation d'une Molécule Neutre par Conversion des Fragments en Ions Négatifs"
(Département de Physique, Université Laval, 1994)

15. **LOTFI** Saïd, Ph.D.:
"Spectroscopie du Furanne et du Thiophène par Diffusion Inélastique d'Electrons"
(Département de Physique, Université Laval, 1994)

16. **BERA** Pranab Kumar, Ph.D.:
"Some Topics in Charged Particle Interactions"
(Department of Physics, Visva-Bharati University, India, 1994)

17. **LAROCHELLE** Simon, M.S.:
"L'Ionisation Multiple d'Atomes de Gaz Rares par le Champ d'un Laser Ti:Saphir"
(Département de Physique, Université Laval, 1997)

18. **AUDET** Jean-François, M.S.:
"Comportement Critique du Modèle de Heisenberg Antiferromagnétique 1-D de Spin 1/2 avec Frustration et en Présence d'un Champ Externe"
(Département de Physique, Université Laval, 1998)

19. **XUDOUS** Yorgo, M.S.:
"Structure des Lois de Conservation dans les Chaînes de Spin avec Interactions à Longue Portée"
(Département de Physique, Université Laval, 1998)

20. **MARQUETTE** Arnaud, Ph.D.:
"Etude de la Relaxation Radiative (UV-visible) d'Atomes et de Petites Molécules Excités en Couche Interne par Rayonnement Synchrotron"
(U.F.R. de Physique, Université de Lille I, 2000)

21. **CRESPOS** Cédric, Ph.D.:
"Dynamique de l'Adsorption Dissociative de l'Hydrogène sur une Surface Métallique"
(Ecole Doctorale des Sciences Chimiques, Université de Bordeaux I, July 2001)

22. **BRASSELET** Etienne, Ph.D.:
"Manipulation Optique Spatio-Temporelle Non Resonante de Cristaux Liquides Nématiques"
(Département de Physique, de Génie Physique, et d'Optique, Université Laval, July 2002)

23. **CAILLAT** Jérémie, Ph.D.:
"Etude théorique des processus électroniques au cours de collisions ion-atome et ion-molécule"
(Laboratoire de Chimie-Physique – Matière et Rayonnement, Université Pierre et Marie Curie, June 2003)

24. **DESROSIERS** Patrick, Ph.D.:
"Les superpolynômes symétriques dans les problèmes à plusieurs corps de la mécanique quantique supersymétrique"
(Département de Physique, de Génie Physique, et d'Optique, Université Laval, Novembre 2004)

25. **FRIGON** Chantal, Ph.D.:
"Etude de la prédissociation du système $b - a$ de O_2^+ par spectroscopie laser "
(Département de Physique, de Génie Physique, et d'Optique, Université Laval, Decembre 2005)

26. **LAPRISE** Jean-François, M.S.:
"Sur l'unification des formalismes classique et quantique du chaos' '
(Département de Physique, de Génie Physique, et d'Optique, Université Laval, January 2006)

27. **LEFEBVRE** Catherine, Ph.D.:
"Stratégies de contrôle laser de la dynamique moléculaire "
(Département de Chimie, Université Laval, et Ecole doctoral Ondes et Matière, Université Paris-Sud, 11 Novembre 2008)

28. **SOULEY** Falama, Ph.D.:
"Simulation numérique du transport spatial et temporel des concentrations de CO_2 et de CH_4 atmosphériques et comparaisons avec les observations"
(Département de Physique, de Génie Physique, et d'Optique, Université Laval, February 2010)

29. **LAPRISE** Jean-François, Ph.D.:
"Matrices aléatoires et billards classiques : Universalité dans les mesures statistiques sur les trajectoires"
(Département de Physique, de Génie Physique, et d'Optique, Université Laval, April 2010)

30. **ZOMORRODI MOGHADDAM** Reza, Ph.D.:
"Influence of the dendritic morphology on electrophysiological responses of thalamocortical neurons"
(Département de Physique, de Génie Physique, et d'Optique, Université Laval, Septembre 2011)

31. **PAQUET** Alex, M.S.:
"Biodétection avec les modes de galerie de microsphères fluorescentes"
(Département de Physique, de Génie Physique, et d'Optique, Université Laval, Septembre 2011)

32. **NADEAU** Louis, Ph.D.:
"Simulations informatiques dans le contexte de l'homéostasie hydrominérale chez le rat"
(Neurobiologie, Faculté de Médecine, Université Laval, Octobre 2011)

33. **MARCEAU** Vincent, Ph.D.:
" Accélération d'électrons à l'aide d'impulsions laser ultrabrèves et fortement focalisées"
(Département de Physique, de Génie Physique, et d'Optique, Université Laval, May 2015)

IV. Scientific Publications (**refereed articles**)

1. **Dubé L. and Herzenberg A.** (1975):
   Resonant Electron-Molecule Scattering: The Impulse Approximation in N_2O.
   Phys. Rev. A11, 1314-1325.

2. **Dubé L. and Herzenberg A.** (1977):
   Vibrational Excitation of Polar Molecules by Slow Electrons: HCl.
   Phys. Rev. Lett. 38, 820-823.

3. **Wong S.F. and Dubé L.** (1978):
   Rotational Excitation of N_2 by Electron Impact: 1-4 eV.
   Phys. Rev. A17, 570-576.

4. **Dubé L.J.** (1978):
   Theory of Electron Molecule Interactions: Case Studies.
   (a dissertation presented to the Faculty of The Graduate School of Yale University, May 1978, 345 pp.)
   available from University Microfilms International, Ann Arbor, Michigan U.S.A.

5. **Dubé L. and Herzenberg A.** (1979):
   Absolute Cross Sections from the "Boomerang Model" for Resonant Electron Molecule Scattering.
   Phys. Rev. A20, 194-213.

6. **Briggs J.S. and Dubé L.** (1980):
   The Second Born Approximation to the Electron Transfer Cross Section.
   J. Phys. B13, 771-784.

7. **Michejda J.A., Dubé L.J. and Burrow P.D.** (1981):
   Detection of Vibrationally Excited Nitrogen by Trapped Electron and Electron Transmission Methods.
   J. Appl. Phys. 52, 3121-3129.

8. **Dubé L.J. and Briggs J.S.** (1981):
   Systematics of the Single and Double Electron Scattering Contributions to Charge Exchange.
   J. Phys. B14, 4595-4617.

9. **Bruch R., Dubé L.J., Trabert E., Heckmann P.H., Raith B. and Brand K.** (1982):
   Electron Capture to Rydberg States: C^{4+} in Collisions with H_2.
   J. Phys. B15, L857-862.

10. **Dubé L.J.** (1983):
    Variational Derivation of a First Order Charge Transfer Theory.
    J. Phys. B16, L147-51.

11. **Abdel-Raouf M.A. and Dubé L.J.** (1983):
    Reexamination of the Optimized Kohn Method.
    Phys. Rev. A27, 1704-1707.

12. **Dubé L.J.** (1983):
    A Note on the Asymptotic Behaviour of Asymmetric Charge Transfer Theories.
    J. Phys. B16, 1783-1791.

13. **Jolly A., Wohrer K., Chetioui A., Rozet J.P., Stephan C. and Dubé L.J.** (1984):
Total Charge Exchange Cross Sections for 400 MeV Bare Fe^{26+} *Ions Colliding with He, N, Ne and Ar Targets.*
J. Phys. B17, 235-242.

14. **Dubé L.J.** (1984):
Multiple Scattering Approaches to the Electron Transfer Process: I. Some Calculable Expressions.
J. Phys. B17, 641-658.

15. **Burgdörfer J. and Dubé L.J.** (1984):
Multiple Scattering Approach to Coherent Excitation in Electron Capture Collisions.
Phys. Rev. Lett. 52, 2225-2228.

16. **Burgdörfer J. and Dubé L.J.** (1985):
Population of Rydberg States by Electron Capture in Fast Ion-Atom Collisions.
Phys. Rev. A31, 634-640.

17. **Dubé L.J. and Burgdörfer J.** (1985):
Electron Capture into Rydberg States in Collisions between Multiply-Charged Ions and Hydrogen.
Nucl. Instr. and Meth. B9, 392-396.

18. **Dubé L.J., Will U., Bruch R., Trabert E. and Heckmann H.H.** (1985):
Theory and Experiment of Electron Capture in Collisions of Multiply Charged Projectiles with Light Targets.
Nucl. Instr. and Meth. B9, 408-412.

19. **Dubé L.J. and Eichler J.** (1985):
Structural and Asymptotic Properties of the Eikonal Approximation for Electron Capture.
J. Phys. B18, 2467-2483.

20. **Burgdörfer J. and Dubé L.J.** (1985):
Coherence, Alignment and Orientation in Ion-Atom Collisions.
Nucl. Instr. and Meth. B10/11, 198-203.

21. **Tepperwien W., Bruch R., Dubé L.J. and Zucatti S.**(1985):
Relative Initial State Populations for the 2p and 3d States of Hydrogen following Electron Capture.
Nucl. Instr. and Meth. B10/11, 146-149.

22. **Hippler R., Harbich W., Faust M., Lutz H.O. and Dubé L.J.** (1986):
Alignment of H(2p) Following H + He, Ar Charge Changing Collisions.
J. Phys. B19, 1507-1514.

23. **Dubé L.J.** (1986):
Multiple Scattering Contributions in Electron Capture Theories.
in "Electronic and Atomic Collisions - Invited Papers", 345-364.
eds D.C. Lorents, W.E. Meyerhof, J.R. Peterson (Amsterdam: North-Holland).

24. **Dubé L.J. and Salin A.** (1987):
Electron Capture to Rydberg and Low-Lying Continuum States.
J. Phys. B20, L499-502.

25. **Dubé L.J. and Broad J.T.** (1989):
Sturmian Discretisation: The Off-Shell Coulomb Wavefunction.
J. Phys. B22, L503-509.

26. **Dubé L.J., Greenland T. and Briggs J.S.** (1989):
Charge Capture from Excited States of H by Fully Stripped C and O Projectiles at High Impact Energy.
TP.1325 pp. 72, ed. Atomic Energy Agency Technology, Harwell Laboratory (Harwell: England).

27. **Crothers D.S.F. and Dubé L.J.** (1989):
Absence of Elastic Divergences in Impact Parameter Continuum Distorted Wave Series.
J. Phys. B22, L609-614.

28. **Dubé L.J. and Broad J.T.** (1990):
Sturmian Discretisation: II. The Off-Shell Coulomb Wavefunction.
J. Phys. B23, 1711-1732.

29. **Dubé L.J., Mensour B., Dewangan D.P. and Chakraborty H.S.** (1990):
Comment on the "Analytic Evaluation of the B1B Cross Sections".
J. Phys. B23, L711-714.

30. **Corchs S.E., Dubé L.J., Maidagan J.M., Rivarola R.D. and Salin A.** (1992):
Uniqueness of the Minimal Form of Coulomb Asymptotic Behaviour in Atomic Collisions.
J. Phys. B25, 2027-2036.

31. **Crothers D.S.F. and Dubé L.J.** (1992):
Continuum Distorted Wave Methods in Ion-Atom Collisions.
Adv. At. Mol. Opt. Phys. 30, 287-337.

32. **Hansen S.B., Ehrenreich T., Horsdal-Pedersen E., MacAdam K.B., and Dubé L.J.** (1993):
Electron Capture from Oriented Circular Rydberg Atoms.
Phys. Rev. Lett. 71, 1522-1525.

33. **Busnengo H.F., Martinez A.E., Rivarola R.D., and Dubé L.J.** (1995):
Distorted Wave Models for Electron Capture in Asymmetric Collisions. II. Differential Cross Sections and the Double Scattering Region.
J. Phys. B28, 3283-3298.

34. **Roy. U., Dubé L.J., Mandal P., and Sil N.C.** (1995):
Evaluation of a General Three-Denominator Lewis Integral.
C.P.C. 92, 277-289.

35. **Dubé L.J.** (1997):
Zoom sur le Chaos.
Interface 18, mars-avril, 50-51.

36. **Vernhet D., Rozet J.P., Bailly-Despiney I., Stephan C., Cassini A., Grandin J.P., and Dubé L.J.** (1998):
Observation of Dynamical Substate Mixing of Fast Ions in Solids.
J. Phys. B31, 117-129.

37. **Vernhet D., Rozet J.P., Lamour E., Gervais B., Fourment C., Dubé L.J.** (1999):
Core and Rydberg State Populations for HCI Projectiles in Solids.
Physica Scripta T80A, 83-86.

38. **Rozet J.P., Vernhet D., Bailly-Despiney I., Fourment C., Dubé L.J.** (1999):
Dynamical Substate Mixing of Fast Ions in Solids: A Density Matrix Approach.
J. Phys. B32, 4677-4696.

39. **Dubé L.J., Després P.** (2000):
The Control of Dynamical Systems – Recovering Order from Chaos –.
(**Contribution Invitée** dans "The Physics of Electronic and Atomic Collisions – XXI International Conference - ", ed. Y. Itikawa et al. (AIP: Woodbury, N.Y.) AIP Conference Proceedings 500, 551-570.

40. **Vernhet D., Rozet J.P., Lamour E., Gervais B., and Dubé L.J.** (2000):
Dynamical and Collisional Approaches to the Transport of Core and Rydberg Projectile States in Solids.
(**Contribution Invitée** dans "The Physics of Electronic and Atomic Collisions – XXI International Conference - ", ed. Y. Itikawa et al. (AIP: Woodbury, N.Y.) AIP Conference Proceedings 500, 666-676.

41. **Beuve M., Gervais B., Lamour E., Rozet J.P., Vernhet D., and Dubé L.J.** (2000):
On Stochastic Dynamics of Hydrogenic Ion Transport Through Solids.
Phys. Lett. A274, 37-46.

42. **Verdes P.F., Deco G., Obradovic D., Dubé L.J., Hopfengaertner R., and Stefan H.** (2000):
Detection and Prediction of Epileptic Seizures: A Patient's Case Study.
(**Contribution Invitée** dans "Proceedings of Congreso Argentino de Ciencia de la Computación", (Ediciones Cientificas Americanas), pp. 1493-1503.)

43. **Vernhet D., Fourment C., Lamour E., Rozet J.P., Gervais B., Dubé L.J., Martin F., Minami T., Reinhold C.O., Seliger M., and Burgdörfer J.** (2001):
Transport of Kr^{35+} Inner-shells Through Solid Carbon Foils.
Physica Scripta T92, 233-236.

44. **Dubé L.J., Després P., Doyon B., and Pourbohloul B.** (2001):
The Control of Hamiltonian Chaos.
Physics in Canada – Special Issue on Nonlinear Dynamics –, mars/avril, 57, 77-82.

45. **Doyon B. and Dubé L.J.** (2002):
Targeting Unknown and Unstable Periodic Orbits.
Phys. Rev. E65, 037202 (1-4).

46. **Brasselet E., Doyon B., Galstian T.V., and Dubé L.J.** (2002):
New Laser Induced Spatio-Temporal Transition In Nematics.
Phys. Lett. A299, 212-216.

47. **Brasselet E., Doyon B., Galstian T.V., and Dubé L.J.** (2003):
Optically Induced Dynamics in Nematic Liquid Crystals: The Role of Twist Deformation and Asymmetry.
Phys. Rev. E67, 031706 (1-13).

48. **Brasselet E., Doyon B., Galstian T.V., and Dubé L.J.** (2004):
Optically Induced Dynamics in Nematic Liquid Crystals: The Role of Finite Beam Size.
Phys. Rev. E69, 021701 (1-12).

49. **Brasselet E., Galstian T., and Dubé L.J.** (2004):
Dynamics of Light Induced Reorientation of Nematic Liquid Crystals in Spatially Confined Beams
Mol. Cryst. Liq. Cryst. 421, 69-80.

50. **Doyon B. and Dubé L.J.** (2005):
On Jacobian Matrices for Flows.
Chaos 15, 013108 (1-8).

51. **Brasselet E., Galstian T., Dubé L.J., Krimer D.O., and Kramer L.** (2005):
Bifurcation Analysis of Optically Induced Dynamics in Nematic Liquid Crystals: Circular Polarization at Normal Incidence
J. Opt. Soc. Am. B22, 1671-1680.

52. **Krimer D.O., Kramer L., Brasselet E., Galstian T., and Dubé L.J.** (2005):
Bifurcation Analysis of Optically Induced Dynamics in Nematic Liquid Crystals: Elliptical Polarization at Normal Incidence
J. Opt. Soc. Am. B22, 1681-1690.

53. **Brasselet E., Lherbier A., and Dubé L.J.** (2006):
Transverse Nonlocal Effects in Optical Reorientation of Nematic Liquid Crystals
J. Opt. Soc. Am. B23, 36-44 (DOI: 10.1364/JOSAB.23.000036)

54. **Brasselet E., Dubé L.J.** (2006):
Light-Induced Chaotic Rotations in Nematic Liquid Crystals
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55. **Brasselet E., Dubé L.J.** (2006):
Chaotic Rotations Generated by Light in Nematic Liquid Crystals
Mol. Cryst. Liq. Cryst. 453, 93-105 (DOI: 10.1080/15421400600651716)

56. **Laprise J.F., Blondeau-Fournier O., Kröger H., Kröger J., St-Louis P.Y., Dubé L.J., Endresse E., Burra A., Zomorrodi R., Melkonyan G., and Moriarty K.J.M.** (2008):
Universality of Level Spacing Distributions in Classical Chaos
Phys. Lett. A372, 4574-4577 (DOI: 10.1016/j.physleta.2008.04.044)

57. **Noël P.A., Davoudi B. , Brunham R.C., Dubé L.J., and Pourbohloul B.** (2009):
Time Evolution of Epidemic Disease on Finite and Infinite Networks
Phys. Rev. E79, 026101 (1-14); also at Vir. J. Bio. Phys. Res. vol. 17, issue 4 / Statistical and Nonlinear Physics (DOI: 10.1103/PhysRevE.79.026101)

58. **Allard A., Noël P.A., Dubé L.J. , and Pourbohloul B.** (2009):
Heterogeneous Bond Percolation on Multitype Networks with an Application to Epidemic Dynamics
Phys. Rev. E79, 036113 (1-9); also at Vir. J. Bio. Phys. Res. vol. 17, issue 7 / Biological Networks (DOI: 10.1103/PhysRevE.79.036113)

59. **Allard A., Noël P.A., and Dubé L.J.** (2009):
Des Ponts d'Euler à la Grippe Aviaire
Accromαth 4 , 24-29.

60. **Painchaud-April G., Poirier J., Gagnon D., Dubé L.J.** (2010):
Phase Space Engineering in Optical Microcavities I: Preserving near-field uniformity while inducing far-field directionality
IEEE Proc. ICTON 2010, Tu.C4.6 (pp. 1-4) (DOI: 10.1109/ICTON.2010.5548943)

61. **Poirier J., Painchaud-April G., Gagnon D., Dubé L.J.** (2010):
Phase Space Engineering in Optical Microcavities II: Controlling the far-field
IEEE Proc. ICTON 2010, Mo.P.9 (pp. 1-4) (DOI: 10.1109/ICTON.2010.5549310)

62. **Hébert-Dufresne L., Noël P.-A., Marceau V., Allard A., and Dubé L.J.** (2010):
Propagation Dynamics on Networks Featuring Complex Topologies
Phys. Rev. E82, 036115 (1-9); also at Vir. J. Bio. Phys. Res. vol. 20, issue 7 / Evolution Physics (DOI: 10.1103/PhysRevE.82.036115)

63. **Marceau V., Noël P.-A., Hébert-Dufresne L., Allard A., and Dubé L.J.** (2010):
Adaptive Networks: Coevolution of Disease and Topology
Phys. Rev. E82, 036116 (1-10); also at Vir. J. Bio. Phys. Res. vol. 20, issue 7 / Evolution Physics (DOI: 10.1103/PhysRevE.82.036116)

64. **Marceau V., Noël P.-A., Hébert-Dufresne L., Allard A., and Dubé L.J.** (2011):
Modeling the Dynamical Interaction between Epidemics on Overlay Networks
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165. **Poulin R. and Dubé L.J.** (1997):
Adaptive Symplectic Integration of Hamiltonian Systems.
Physics in Canada 53, 71.

166. **Deco G., Beaulieu F. and Dubé L.J.** (1999):
Prediction and Noise Filtering in Dynamical Systems: A Neural Network Approach.
"Abstracts of 5th SIAM Conference on Applications of Dynamical Systems".

167. **Dubé L.J, Beaulieu F. and Deco G.** (1999):
A Novel Measure of Nonstationarity in Dynamical Systems.
"Abstracts of 5th SIAM Conference on Applications of Dynamical Systems".

168. **Pourbohloul B. and Dubé L.J.** (1999):
Control and Tracking in the Diamagnetic Kepler Problem.
"Abstracts of 5th SIAM Conference on Applications of Dynamical Systems".

169. **Pourbohloul B. and Dubé L.J.** (1999):
Unstable Periodic Orbits of Area Preserving Mappings.
"Abstracts of 5th SIAM Conference on Applications of Dynamical Systems".

170. **Vernhet D., Fourment C., Lamour E., Rozet J.P., Gervais B., Dubé L.J., Martin F., Minami T., Reinhold C.O., Seliger M., Burgdörfer J.** (2000) **PO**:
Transport of Kr^{35+} Inner-shells Through Solid Carbon Foils.
"Proceedings of the 10th International Conference on the Physics of Highly Charged Ions (HCI)", Physica Scripta T92, 233-236 (publiée en 2001).

171. **Doyon B. and Dubé L.J.** (2001) **OP**:
Blind Targeting and Control.
"Abstracts of 6th SIAM Conference on Applications of Dynamical Systems".

172. **Doyon B. and Dubé L.J.** (2001) **PO**:
Detection of Unstable Periodic Orbits.
"Abstracts of 6th SIAM Conference on Applications of Dynamical Systems".

173. **Brasselet E., Doyon B., Galstian T., and Dubé L.J.** (2003) **OP**:
Non Localité Spatiale et Dynamique Complexe Photo-Induite d'un Film de Cristal Liquide
"Résumés de la 6ème Rencontre du Non-Linéaire 2003", http://pnl.lps.u-psud.fr/pnl/Programme2003.html

174. **Brasselet E., Galstian T., and Dubé L.J.** (2003) **PA**:
Dynamics of Light Induced Reorientation of Nematic Liquid Crystals in Spatially Confined Beams
"Proceedings of the 10th International Topical Meeting on Optics of Liquid Crystals (Aussois, Mondane, France, September 13-19, 2003)" Mol. Cryst. Liq. Cryst. **421**, 69-80 (2004)

175. **Brasselet E., Doyon B., and Dubé L.J.** (2003) **OP**:
Contrôle et Stabilisation Optique du Chaos Orientationnel Photo-induit d'un Film de Cristal Liquide Nématique

"Résumés du 4ième Colloque sur le Chaos Temporel et le Chaos Spatio-Temporel (Rouen, France, December 2003)"

176. **Saïdi S. and Dubé L.J.** (2003) **OP**:
Etude de l'Emission Cohérente dans des Microcavités Chaotiques
"Résumés du 4ième Colloque sur le Chaos Temporel et le Chaos Spatio-Temporel (Rouen, France, December 2003)"

177. **Saïdi S. and Dubé L.J.** (2004) **PO**:
Coherent Emission from Chaotic Microcavities
"Abstracts of the 8th EPS Conference on Atomic and Molecular Physics", p. 90,
ed. par K.M. Dunseath and M. Terao-Dunseath.

178. **Brasselet E. and Dubé L.J.** (2005) **OP**:
Rotations Chaotiques Induites par la Lumière dans un Film de Cristal Liquide Nématique
"Résumés du 5ième Colloque sur le Chaos Temporel et le Chaos Spatio-Temporel (Le Havre, France, December 2005)"

179. **Brasselet E. and Dubé L.J.** (2006) **PA**:
Chaotic Rotations by Light in Nematic Liquid Crystals
"Proceedings of the 11th International Topical Meeting on Optics of Liquid Crystals (Sand Key, Florida, USA, October 2-7, 2005)" Mol. Cryst. Liq. Cryst. 453, 93-105.

180. **Painchaud-April G., Poirier J., St-Louis P.-Y., Anonymous, Saïdi S., Dubé L.J.** (2007) **PO**:
Wave Chaos in a New Class of Optical Microcavity
"Abstracts of 9th SIAM Conference on Applications of Dynamical Systems".

181. **Poirier J., Saïdi S., Painchaud-April G., St-Louis P.-Y., Anonymous, Dubé L.J.** (2007) **PO**:
Classical Chaos in a Novel Inhomogeneous Photonic Billiard
"Abstracts of 9th SIAM Conference on Applications of Dynamical Systems".

182. **Anonymous, Painchaud-April G., Poirier J., Dubé L.J.** (2007) **PO**:
Controlling Atomic Motions in Optical Billiards
Bull. Am. Phys. Soc. 52, 35.

183. **Saïdi S., Poirier J., Painchaud-April G., St-Louis P.-Y., Anonymous, Dubé L.J.** (2007) **PO**:
Classical Chaos in a Novel Inhomogeneous Photonic Billiard
Bull. Am. Phys. Soc. 52, 118.

184. **Painchaud-April G., Poirier J., St-Louis P.-Y., Anonymous, Saïdi S., Dubé L.J.** (2007) **PO**:
Wave Chaos in a New Class of Optical Microcavity
Bull. Am. Phys. Soc. 52, 118.

185. **Painchaud-April G., Poirier J., St-Louis P.-Y., Anonymous, Saïdi S., Dubé L.J.** (2007) **PO**:
Wave Chaos in a New Class of Optical Microcavity
Physics in Canada 63, Supplement May/June, p. 52.

186. **Anonymous, Painchaud-April G., Poirier J., Dubé L.J.** (2007) **PO**:
Controlling Atomic Motions in Optical Billiards
Physics in Canada 63, Supplement May/June, p. 130.

187. **Poirier J., Saïdi S., Painchaud-April G., St-Louis P.-Y., Anonymous, Dubé L.J.** (2007) **PO**:
Classical Chaos in a Novel Inhomogeneous Photonic Billiard
Physics in Canada 63, Supplement May/June, p. 138.

188. **Painchaud-April G., Poirier J., Dubé L.J.** (2008) **PO**:
Transport Mechanisms in Dielectric Optical Microcavities
Bull. Am. Phys. Soc. 53, 109.

189. **Painchaud-April G., Poirier J., Saïdi S., Peter Y.-A., Brasselet E., Dubé L.J.** (2008) **PO**:
Highly Directional Emission from Inhomogeneous Dielectric Microcavities
Bull. Am. Phys. Soc. 53, 109.

190. **Painchaud-April G., Poirier J., Dubé L.J.** (2008) **PO**:
Transport Mechanisms in Dielectric Optical Microcavities
Physics in Canada 64, Supplement May/June, p. 150.

191. **Painchaud-April G., Poirier J., Saïdi S., Peter Y.-A., Brasselet E., Dubé L.J.** (2008) **PO**:
Highly Directional Emission from Inhomogeneous Dielectric Microcavities
Physics in Canada 64, Supplement May/June, p. 150.

192. **Noël P.-A., Davoudi B., Brunham R.C., Dubé L.J., Pourbohloul B.** (2008) **PO**:
Time Evolution of Epidemic Dynamics on Finite and Infinite Networks
Physics in Canada 64, Supplement May/June, p. 157.

193. **Allard A., Noël P.-A., Dubé L.J., Pourbohloul B.** (2008) **PO**:
Heterogeneous Bond Percolation on Complex Networks: Application to Epidemiology
Physics in Canada 64, Supplement May/June, p. 158.

194. **Noël P.-A., Allard A., Dubé L.J.** (2009) **PO**:
Time Evolution of Epidemics on Complex Networks
"Abstracts of 10th SIAM Conference on Applications of Dynamical Systems".

195. **Painchaud-April G., Poirier J., Dubé L.J.** (2009) **PO**:
Phase Space as an Optical Engineering Tool in Open Microcavity Designs
"Abstracts of 10th SIAM Conference on Applications of Dynamical Systems".

196. **Poirier J., Painchaud-April G., Dubé L.J.** (2009) **PO**:
Controlling Transport Properties in Dielectric Billiards
"Abstracts of 10th SIAM Conference on Applications of Dynamical Systems".

197. **Marceau V., Noël P.-A., Hébert-Dufresne L., Allard A., and Dubé L.J.** (2010) **PO**:
Adaptive Networks: Coevolution of Disease and Topology
"Abstracts of the International School and Conference on Network Science (NetSci 10)".

198. **Hébert-Dufresne L., Noël P.-A., Marceau V., Allard A., and Dubé L.J.** (2010) **PO**:
Propagation Dynamics on Networks Featuring Complex Topologies
"Abstracts of the International School and Conference on Network Science (NetSci 10)".

199. **Noël P.-A., Allard A., and Dubé L.J.** (2010) **PO**:
Exact(?) SIR Dynamics on Networks of Finite Size
"Abstracts of the International School and Conference on Network Science (NetSci 10)".

200. **Allard A., Noël P.-A., Hébert-Dufresne L., Marceau V., and Dubé L.J.** (2010) **PO**:
Multitype Modular Networks as a Model of Clustered Social Networks
"Abstracts of the International School and Conference on Network Science (NetSci 10)".

201. **Gagnon D., Painchaud-April G., Poirier J., Dubé L.J.** (2010) **PO**:
Modified Fresnel Coefficients for Optical Microcavities
Bull. Am. Phys. Soc. 55, 116.

202. **Painchaud-April G., Poirier J., Gagnon D., Dubé L.J.** (2010) **PA, OP**:
Phase Space Engineering in Optical Microcavities I: Preserving near-field uniformity while inducing far-field directionality
Bull. Am. Phys. Soc. 55, 116;
IEEE Proc. ICTON 2010, Tu.C4.6 (pp. 1-4) (http://dx.doi.org/10.1109/ICTON.2010.5548943)

203. **Poirier J., Painchaud-April G., Gagnon D., Dubé L.J.** (2010) **PA, PO**:
Phase Space Engineering in Optical Microcavities II: Controlling the far-field
Bull. Am. Phys. Soc. 55, 116;
IEEE Proc. ICTON 2010, Mo.P.9 (pp. 1-4) (http://dx.doi.org/10.1109/ICTON.2010.5549310)

204. **Painchaud-April G., Gagnon D., Dubé L.J.** (2011) **OP**:
Scattering Description of the Resonant Modes of Open 2D Dielectric Cavities
"Abstracts of the International Workshop on Microcavities and their Applications (WOMA 11)".

205. **Gagnon D., Painchaud-April G., Poirier J., Dubé L.J., Vanier F., Hayat A., and Peter Y.-A.** (2011) **PO**:
Numerical Design and Optimization Strategies for Annular Silica Microcavities
"Abstracts of the International Workshop on Microcavities and their Applications (WOMA 11)".

206. **Noël P.-A., Allard A., Hébert-Dufresne L., Marceau V., and Dubé L.J.** (2011) **PO**:
Stochastic Network Models: Analytical Tools for STI Studies
"Abstracts of the 19th Biennial Conference of the International Society for Sexually Transmitted Diseases Research", Sex Transm Infect 2011;87:A168-A169 doi:10.1136/sextrans-2011-050108.163.

207. **Hébert-Dufresne L., Allard A., Marceau V., Noël P.-A., and Dubé L.J.** (2011) **OP**:
Structural Preferential Attachment: Network Organisation beyond the Link
"Abstracts of the International School and Conference on Network Science (NetSci 11)".

208. **Marceau V., Noël P.-A., Hébert-Dufresne L., Allard A., and Dubé L.J.** (2011) **OP**:
Modelling the Dynamical Interaction between Epidemics on Overlay Network
"Abstracts of the International School and Conference on Network Science (NetSci 11)".

209. **Noël P.-A., Allard A., Hébert-Dufresne L., Marceau V., and Dubé L.J.** (2011) **PO**:
A Study of Network Representations for Markov Dynamics Modelling
"Abstracts of the International School and Conference on Network Science (NetSci 11)".

210. **Allard A., Hébert-Dufresne L., Noël P.-A., Marceau V., and Dubé L.J.** (2012) **OP**:
Exact Solution of Percolation on Small Arbitrary Graphs
"Abstracts of International Workshop and Conference on Network Science (NetSci) ".

211. **Hébert-Dufresne L., Allard A., Young J.-G., and Louis J. Dubé** (2012) **OP**:
Using Network Organization to Hinder Propagation in Structured Populations
"Abstracts of International Workshop and Conference on Network Science (NetSci) ".

212. **Hébert-Dufresne L., Allard A., and Dubé L.J.** (2012) **PA, OP**:
On the constrained growth of complex critical systems
"Proc. of COMPLEX 2012", à être publié dans Lecture Notes in Computing Science

213. **Young J.-G., Allard A., Hébert-Dufresne L., and Dubé L.J.** (2012) **PA, OP**:
Unveiling Hidden Communities Through Cascading Detection on Network Structures
"Proc. of COMPLEX 2012", Lecture Notes in Computing Science.

214. **Allard A., Hébert-Dufresne L., Young J.-G., and Dubé L.J.** (2013) **OP**:
Bond and Site Percolation on Clustered and Correlated Random Graphs
"Proc. of Joint CRM-Imperial College School and Workshop in Complex Systems".

215. **Allard A., Hébert-Dufresne L., Young J.-G., and Dubé L.J.** (2013) **PO**:
Bond and Site Percolation on Clustered and Correlated Random Graphs
"Abstracts of International Workshop and Conference on Network Science (NetSci) ".

216. **Hébert-Dufresne L., Allard A., and Dubé L.J.** (2013) **OP**:
Hard-Core Random Networks as an Effective Model of Bond Percolation on Real Networks
"Abstracts of International Workshop and Conference on Network Science (NetSci) ".

217. **Young J.-G., Allard A., Hébert-Dufresne L., and Dubé L.J.** (2013) **PO**:
Local and Global Solutions to Community Detection Unveiling Hidden Communities Through Cascading Detection on Network Structures
"Abstracts of International Workshop and Conference on Network Science (NetSci) ".

218. **Gagnon D., Dumont J., and Dubé L.J.** (2013) **PO**:
Optimization in Optical Systems Revisited: Beyond Genetic Algorithms
Bull. Am. Phys. Soc. 58 (Abstract ID: BAPS.2013.DAMOP.D1.14)

219. **Gagnon D., Dumont J., and Dubé L.J.** (2013) **PA, OP**:
Coherent Beam Shaping using Two-Dimensional Photonic Crystals
IEEE Proc. ICTON 2013, Mo.D6.4 (pp. 1-4) (DOI: 10.1109/ICTON.2013.6602751)

220. **Painchaud-April G., Dumont J., Gagnon D., and Dubé L.J.** (2013) **PA, OP, Invited**:
S and Q Matrices Reloaded: applications to open, inhomogeneous, and complex cavities
IEEE Proc. ICTON 2013, Tu.B6.3 (pp. 1-4) (DOI: 10.1109/ICTON.2013.6602811)

221. **Gagnon D., Dumont J., Déziel J.-L., and Dubé L.J.** (2014) **PA, OP, invited**:
Adding SALT to Coupled Microcavities: the making of active photonic molecule lasers
IEEE Proc. ICTON 2014, Mo.C6.3 (pp. 1-4) (DOI: 10.1109/ICTON.2014.6876299)

222. **Young J.-G., Hébert-Dufresne L., Allard. A., and Dubé L.J.** (2014) **OP**:
Structural preferential attachment of community structure and its relation to Dunbar's number
"Abstracts of International Workshop and Conference on Network Science (NetSci) ".

223. **Hébert-Dufresne L., Laurence E., Allard A., Young J.-G., Dubé L.J.** (2014) **PO**:
Complex networks are an emerging property of hierarchical preferential attachment
"Abstracts of International Workshop and Conference on Network Science (NetSci) " (voted **Outstanding Poster**).

224. **Déziel J.-L., Dumont J., Gagnon D., Dubé L.J., Messaddeq S.H. , and Messaddeq Y.** (2015) **PO**:
Growth of laser-induced periodic surface structures under competing ablation and photo-expansion mechanisms "Abstracts of the 17th Photonics North Conference, Ottawa, Canada".

225. **Laurence E., Young J.-G., Melnik S., and Dubé L. J.** (2015) **PO**:
Exact analytical solution of binary dynamics on networks
"Abstracts of 10th International Workshop and Conference on Network Science (NetSci) ".

226. **Young J.-G., Hébert-Dufresne L., Laurence E., and Dubé L. J.** (2015) **PO**:
Structural preferential attachment: scale-free benchmark graphs for overlapping community detection algorithms
"Abstracts of 10th International Workshop and Conference on Network Science (NetSci) ".

227. **Déziel J.-L., Dumont J., Gagnon D., Dubé L.J., Messaddeq S.H. , and Messaddeq Y.** (2015) **PA, OP**:
Growth of laser-induced periodic surface structures under competing ablation and photo-expansion mechanisms
Proceedings of the 11th International Conference on Excitonic and Photonic Processes in Condensed Matter and Nano Materials Montréal, Canada, Physica Status Solidi C 13, 122-124 (2016).

228. **Young J.-G., Hébert-Dufresne L., Laurence E., Desrosiers P., and Dubé L.J.** (2016) **OP**:
Finite size analysis of the detectability limit of the stochastic block model
"Abstracts of 11th International Workshop and Conference on Network Science (NetSci) ".

229. **Murphy C., Laurence E., St-Onge G., Young J.-G., and Dubé L.J.** (2016) **OP**:
Time-dependent Spatial Growth of Complex Networks
"Abstracts of 11th International Workshop and Conference on Network Science (NetSci) ".

230. **St-Onge G., Laurence E., Murphy C., Young J.-G., Dubé L.J.** (2016) **PO**:
Co-evolution of Growth and Dynamics on Networks
"Abstracts of 11th International Workshop and Conference on Network Science (NetSci) ".

231. **Déziel J.-L., Varin C., Dubé L.J., and Messaddeq Y.** (2016) **OP**:
Toward the Dynamical Modelization of Self-Organized Plasma Formation in Solids
"Abstracts of the 18th Photonics North Conference, Québec, Québec, Canada".

232. **Laurence E., Desrosiers P., and Dubé L.J.** (2017) **PO**:
Persistent activity of neural dynamics on hierarchical networks
"Abstracts of 12th International Workshop and Conference on Network Science (NetSci17) ".

233. **Murphy C., Allard A., St-Onge G., Dubé L.J.** (2017) **OP**:
Time-dependent connection threshold in growing random geometric graphs
"Abstracts of 12th International Workshop and Conference on Network Science (NetSci17) ".

234. **St-Onge G., Young J.-G., Laurence E., Murphy C., and Dubé L.J.** (2017) **OP**:
Susceptible-infected-susceptible dynamics on the rewired configuration model
"Abstracts of 12th International Workshop and Conference on Network Science (NetSci17) ".

235. **Young J.-G., St-Onge G., Desrosiers P., and Dubé L.J.** (2017) **OP**:
Statistical mechanics of mesoscopic structure extraction "Abstracts of 12th International Workshop and Conference on Network Science (NetSci17) ".

236. **Déziel J.-L., Dubé L.J., Messaddeq S. H., Messaddeq Y., and Varin C.** (2017) **OP**:
Femtosecond Self-Reconfiguration of Laser-Induced Plasma Patterns in Dielectrics
"Abstracts of the 19th Photonics North Conference, Ottawa, Ontario, Canada".

237. **Desrosiers P., Laurence E., Doyon N., and Dubé L.J.** (2017) **OP**:
Resilience in dynamical neural networks with synaptic adaptation
"Abstracts of 26th Annual Computational Neuroscience Meeting (CNS*2017) ".

238. **Laurence E., Desrosiers P., Doyon N., and Dubé L.J.** (2017) **PO**:
Functional resilience in dynamical complex networks with adaptive connectivity
"Abstracts of Network Neuroscience Satellite, NetSci17 ".

239. **Murphy C., Allard A., Laurence E., St-Onge G., and Dubé L.J.** (2017) **OP**:
Geometric evolution of complex networks
"1st Mapping Complexity Foundations and Applications of Network Geometry (MACFANG) Workshop, Barcelona, Spain".

240. **Thibeault V., Roy-Pomerleau X., Young J.G., St-Onge G., Dubé L.J., and Desrosiers P.** (2018) **PO**:
Synchronization dynamics on the stochastic bloc model
"Abstracts of 13th International Workshop and Conference on Network Science (NetSci18), Paris, France".

241. **Laurence E., Doyon N., Dubé L.J., and Desrosiers P.** (2018) **OP**:
A new dimension-reduction method for complex dynamical networks
"SIAM Workshop on Network Science 2018, Portland, Oregon, USA"

242. **Désy B., St-Onge G., Desrosiers P., and Dubé L.J.** (2018) **OP**:
Complex network analysis of birds co-occurrence patterns in boreal forest
"2nd Sentinel North Annual Meeting 2018, Québec, Québec"

243. **Laurence E., Doyon N., Dubé L.J., and Desrosiers P.** (2018) **OP**:
Predicting breakdowns of dynamical complex networks
"2nd Sentinel North Annual Meeting 2018, Québec, Québec"

244. **Thibeault V., Roy-Pomerleau X., Young J.G., St-Onge G., Dubé L.J., and Desrosiers P.** (2018) **PO**:
The impact of community structure on network dynamics: The case of synchronization
"2nd Sentinel North Annual Meeting 2018, Québec, Québec"

245. **St-Onge G., Hébert-Dufresne L., and Dubé L.J.** (2019) **OP**:
Mesoscopic localization of spreading processes on networks

"Abstracts of 14th International Workshop and Conference on Network Science (NetSci19), Burlington, Vermont".

246. **Roy-Pomerleau X., Dubé L.J, and Desrosiers P.** (2019) **PO**:
Inferring higher-order co-occurrence patterns and simplicial complexes from presence/absence data
"Workshop on Higher-order Interaction Networks: Dynamics, Structure, Data, Oxford, UK".

247. **Roy-Pomerleau X., Dubé L.J, and Desrosiers P.** (2020) **PO**:
Inferring higher-order co-occurrence patterns and simplicial complexes from presence/absence data
"Abstracts of 15th International Workshop and Conference on Network Science (NetSci20), Rome, Italy".

248. **Thibeault V., St-Onge G., Dubé L.J., and Desrosiers P.** (2020) **PO**:
A threefold approach for reducing the dimension of dynamics on networks: An application to synchronization
"Abstracts of 15th International Workshop and Conference on Network Science (NetSci20), Rome, Italy".

VI. Invited Presentations (Seminars and Colloquia)

249. **Electron -Polar Molecule Interaction.**
Department of Theoretical Chemistry, Uni.of Oxford (Oxford, England) 21 Nov. 1978

250. **A New Procedure to Calculate Resonance Eigenvalues: The Complex Coordinate Method.**
Division of Theoretical Physics, AERE Harwell (Didcot, England) 22 May 1979

251. L^2 **Discretization of Continua: A Methodological Overview.**
Fakultät für Physik, Uni. Freiburg (Freiburg, W. Germany) 31 Oct. 1980

252. **Systematics of the 1st and 2nd Born Cross Sections for Charge Exchange.**
Institute of Nuclear Research of the Hung. Acad. Sci. (ATOMKI) (Debrecen, Hungary) 7 March 1981

253. **Distribution of Excitation in Electron Capture Processes.**
Fakultät für Physik, Uni. Freiburg (Freiburg, W. Germany) 26 June 1981

254. **Everything you ever wanted to know about the 2nd Born and were afraid to ask.**
Labo. d'Astrophysique, Uni. de Bordeaux I (Talence, France) 5 Oct. 1981

255. **The Complex Coordinate Method.**
Fakultät für Physik, Uni. Freiburg (Freiburg, W. Germany) 6 Nov. 1981

256. **Theory of Asymmetric Charge Transfer Collisions.**
Institut für Physikalische Chemie, Uni. Heidelberg (Heidelberg, W. Germany) 21 June 1982

257. **Variational Treatment of Rearrangement Collisions.**
4. Arbeitsgruppe, Energiereiche Atomare Stöße (Oberstdorf, W. Germany) 1 Feb. 1983

258. **Various Multiple Scattering Theories of Electron Capture.**
4. Arbeitsgruppe, Energiereiche Atomare Stöße (Oberstdorf, W. Germany) 3 Feb. 1983

259. **Développements Récents dans la Théorie d'Echange de Charge.**
Faculté des Sciences, Uni. Libre de Bruxelles (Bruxelles, Belgique) 9 March 1983

260. **Recent Developments in Charge Exchange Theory.**
Sektion Physik, Uni. München (Garching, W. Germany) 24 March 1983

261. **Thomas Scattering in Collisions Involving Excited States.**
Rijkuniversiteit Utrecht (Utrecht, The Netherlands) 5 August 1983

262. **Le Processus de Capture dans les Collisions Ion-Atom.**
Département de Physique, Uni. Laval (Québec, Québec) 8 Sept. 1983

263. **New Directions in the Theory of Charge Exchange.**
Institut für Atom - und Festkörperphysik, 11 Jan. 1984
Freie Universität Berlin (Berlin, W. Germany)

264. **Kohärenz Effekte in Elektronen Einfang Stößen.**
5. Arbeitsgruppe, Energiereiche Atomare Stöße (Oberstdorf, W. Germany) 31 Jan. 1984

265. **Dichtematrix Formalismus und Seine Interpretation.**
Fakultät für Physik, Uni. Freiburg (Freiburg, W. Germany) 10 Feb. 1984

266. **Theories of Charge Exchange Processes at Intermediate and High Energies.**
Fachbereich Physik, Uni. Kaiserslautern (Kaiserslautern, W. Germany) 16 Feb. 1984

267. **Statistische Tensoren, Kepler-Bahnen und Thomas Streuung.**
6. Arbeitsgruppe, Energiereiche Atomare Stöße (Oberstdorf, W. Germany) 29 Jan. 1985

268. **Theorien höherer Ordnung in Ion-Atom Stößen.**
Institut für Theoretische Physik II, Justus-Liebig-Uni. Giessen (Giessen, W. Germany) 7 Feb. 1985

269. **Final State Distributions in Electron Capture: the Intermediate and High Energy Regime.**
Stanford University (Palo Alto, California) 22 July 1985

270. **Multiple Scattering Contributions in Electron Capture Theories.**
Stanford University (Palo Alto, California) 24 July 1985

271. **Geometrical Interpretation of Coherent Excitation in Ion-Atom Collisions.**
North Arizona Uni. Conference Center (Flagstaff, Arizona) 3 August 1985

272. **Coherent Excitation in Ion-Atom Collisions.**
Fysisch Labo., Rijksuniversiteit te Utrecht (Utrecht, The Netherlands) 12 Nov. 1985

273. **Reaktive Stöße in Coulomb-Systemen.**
Fakultät für Physik, Uni. Freiburg (Freiburg, W. Germany) 13 Jan. 1985

274. **Excitation Cohérente dans les Collisions Ion-Atome:**
Partie 1: Le Formalisme 5 March 1986
Partie 2: Applications 12 March 1986
Partie 3: De la Matrice Densité au Signal Optique 19 March 1986
Partie 4: La Limite Rydberg ($n \gg 1$)
et la Continuité au-dessus du Seuil d'Ionization 9 April 1986
Labo. des Collisions Atomiques, Uni. de Bordeaux I (Talence, France)

275. **Kohärente Anregung in Ion-Atom Stößen.**
Fachbereich Physik, Uni. Kaiserslautern (Kaiserslautern, W. Germany) 24 April 1986

276. **Kohärente Anregung in Ion-Atom Stößen.**
Zentrum für Interdisziplinäre Forschung (ZIF), Uni. Bielefeld (Bielefeld, W. Germany) 29 April 1986

277. **Störungstheoretische Methode in Ion-Atom Stößen.**
Institut für Theoretische Physik, Uni. Frankfurt (Frankfurt, W. Germany) 12 May 1986

278. **Tests of Multiple Scattering Contributions in Ion-Atom Collisions.**
Physics Department, Texas A& M University (College Stn, Texas) 8 Nov. 1986

279. **Coherent Excitation in Ion-Atom Collisions.**
Institute of Physics, Aarhus Uni. (Aarhus, Denmark) 15 Jan. 1987

280. **Cuspologie: Rydberg versus Kontinuum Elektronen.**
8. Arbeitsgruppe, Energiereiche Atomare Stöße (Oberstdorf, W. Germany) 28 Jan. 1987

281. **Dynamische Wechselwirkungen von Ionen mit Gas und Oberfläche.**
Naturwissenschaftiche Fakultät, Uni. Witten (Witten, W. Germany) 3 Feb. 1987

282. **Renormalisation Theory and Fractal Geometry.**
Department of Physics, York Uni. (Toronto, Ontario) 20 Oct. 1987

283. **Renormalisation Theory and Fractal Geometry.**
Physics Department, Texas A & M Uni. (College Stn, Texas) 5 Nov. 1987

284. **Théorie de la Renormalisation et Géométrie Fractale.**
Département de Physique, Uni. Laval (Québec, Québec) 19 Jan. 1988

285. **Théorie de la Renormalisation et Géométrie Fractale.**
Département de Physique, Uni. de Bordeaux I (Talence, France) 7 July 1988

286. **Discretised Continua for Ion-Atom Collisions.**
Physics Department, Texas A & M Uni. (College Stn, Texas) 3 Nov. 1988

287. **Théorie de la Renormalisation et Géométrie Fractale.**
Département de Physique, Uni. du Québec à Trois-Rivières (Trois-Rivières, Québec) 23 March 1989

288. **Vers une Interprétation Géométrie des Collisions Ion- Atome.**
Institut des Sciences des Matériaux et du Rayonnement, Uni. de Caen (Caen, France) 23 June 1989

289. **Renormalisation, Dynamique Complexe et Géométrie Fractale:**
Partie 1: Un Tour d'Horizon 15 Nov. 1989
Partie 2: Caractérisation de la Dynamique 16 Nov. 1989
Département de Physique et
Centre de Recherche en Dynamique du Solide, Uni. de Sherbrooke (Sherbrooke, Québec)

290. **What Have Fractals to Do with Physics that We Should Be Mindful of Them ?**
Department of Physics and Astronomy, Uni. of Western Ontario (London, Ontario) 6 Dec. 1989

291. **The Fractal Nature of Complex (Magnetic) Boundaries**.
Department of Physics, Uni. of Southern-California (Los Angeles, California) 12 March 1990

292. **Fractals et la Théorie des Transitions de Phase.**
Université Laval (Québec, Québec) 17 May 1990

293. **Is There A Unique Lowest Order Charge Transfer Theory?**
XIIth ISIAC (Gold Coast, Australia) 19 July 1991

294. **The Fractal Nature of Renormalisation Dynamics.**
Instituto de Astronomia y Física del Espacio (Buenos Aires, Argentina) 30 Oct. 1991

295. **The Density Matrix. Applications in Atomic Physics.**
Part 1: Fundamental Properties of the Density Matrix
Part 2: Tensorial Representations, Algebraic Classifications and Geometrical Interpretation
Part 3: Apllications in Collision Physics
Part 4: Future Perspectives
Instituto de Física Rosario, Uni. Nacional de Rosario (Rosario, Argentina) 4-8 Nov. 1991

296. **La Naturaleza Fractal de la Dinamica de Renormalizacion.**
Instituto de Física Rosario, Uni. Nacional de Rosario (Rosario, Argentina) 12 Nov. 1991

297. **The Effectiveness of the Thomas Mechanism for Electron Capture: A Reasonable Expectation?**
Institute of Physics and Astronomy, Aarhus Uni. (Aarhus, Denmark) 10 March 1993

298. **L'Univers Est-Il Fractal?**
Laboratoire de Physique Théorique, Uni. de Bordeaux I (Talence, France) 18 March 1993

299. **Dynamique pour Tous Les Goûts.**
Labo. des Collisions Atomiques, Uni. de Bordeaux I (Talence, France) 25 Mars 1993

300. **Rydberg Atoms in Charge Exchange Processes.**
XIIIth ISIAC (Stockholm, Sweden) 29 July 1993

301. **Dynamique Chaotique dans les Interactions Ion-Matière.**
Colloque DIAM (Bourges, France) 1 Sept. 1993

302. **De l'Importance d'Etre Nonlinéaire.**
Département de Physique, Uni. Laval (Québec, Québec) 28 March 1995

303. **Dynamics with a Gentle Touch: Control and Synchronisation in Chaotic Systems.**
Fakultät für Physik, Uni. Freiburg (Freiburg, Germany) 3 Jan. 1997

304. **Controlling Chaotic Dynamical Systems.**
Department of Physics, York University (Toronto, Ontario) 18 Feb. 1997

305. **The Control of Deterministic Chaos.**
Institute of Theoretical Atomic and Molecular Physics (ITAMP) and
Department of Physics, Harvard University (Cambridge, Mass.) 19 March 1997

306. **All Stable Processes, We Shall Predict; All Unstable Processes, We Shall Control.**
Zentralabteilung Technik, Siemens AG (München, Germany) 10 July 1997

307. **Symplectic Integration: Integrating Hamiltonian Systems without Pain.**
Fakultät für Physik, Uni. Freiburg (Freiburg, Germany) 14 January 1998

308. **The Control of Dynamical Systems – From Chaos to Order –.**
Fakultät für Physik, Uni. Freiburg (Freiburg, Germany) 22 January 1998

309. **Notions de Chaos et de Complexité.**
Laboratoire d'Analyse Cognitive de l'Information (LANCI)
Département de Philosophie, Uni. du Québec à Montréal (Montréal, Québec) 5 February 1998

310. **Manipulation de la Matière par la Lumière – le prix Nobel de Physique 1997 –.**
Département de Physique, Université Laval (Québec, Québec) 10 February 1998

311. **La Maîtrise du Chaos – Utopie ou Réalité? – .**
Département de Physique, Uni. de Trois-Rivières (Trois-Rivières, Québec) 16 February 1998

312. **La Maîtrise du Chaos – Utopie ou Réalité? – .**
Faculté de Sciences et de Génie, Uni. Laval (Québec, Québec) 19 February 1998

313. **La Maîtrise du Chaos – Utopie ou Réalité? – .**
Groupe de Physique des Solides, Uni. Paris 6 et Paris 7 (Paris, France) 7 May 1998

314. **Le Contrôle du Chaos Déterministe.**
Labo. de Physico-Chimie Moléculaire, Uni. de Bordeaux I (Bordeaux, France) 14 May 1998

315. **The Control of Dynamical Systems – Recovering Order from Chaos –.**
School of Computer Science, McGill University (Montréal, Québec) 26 August 1998

316. **Is von Neumann's Dream Becoming a Reality? – The Control of Unstable Systems –.**
Department of Physics, Uni. of Ottawa (Ottawa, Ontario) 8 Octobre 1998

317. **The Control of Dynamical Systems – Recovering Order from Chaos –.**
XXIth International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC).
(Sendai, Japan) 27 July 1999

318. **Von Neumann's Dream Revisited – The Control of Chaos –.**
Fakultät für Physik, Uni. Freiburg (Freiburg, Germany) 9 Novembre 1999

319. **Le Rêve de von Neumann Revisité – Le Contrôle du Chaos –.**
Laboratoire de Dynamique des Ions, Atomes, et Molécules 13 Decembre 1999
Université Pierre et Marie Curie (Paris, France)

320. **Le Rêve de von Neumann Revisité – Le Contrôle du Chaos –.**
Département de Physique, Université Laval (Québec, Québec) 26 Septembre 2000

321. **Order Beware, Chaos Everywhere!**
Canadian Undergraduate Physics Conference (CUPC 2000) (Québec, Québec) 9 Novembre 2000

322. **Le Chaos Mis En Lumière**
Laboratoire de Dynamique des Ions, Atomes, et Molécules 30 Octobre 2001
Université Pierre et Marie Curie (Paris, France)

323. **Le Chaos Mis en Lumière: Du Billard au Microlaser**
Laboratoire de Photonique Quantique et Moléculaire 13 March 2002
Ecole Normale Supérieure de Cachan (Cachan, France)

324. **Le Chaos Mis en Lumière: Du Billard au Microlaser**
Colloque de la Division de Physique Atomique, Moléculaire et Optique (PAMO 2002)
Société Française de Physique (Bourges, France) 2 July 2002

325. **Le Contrôle de Systèmes Dynamiques Chaotiques – le rêve de von Neumann revisité –**
Laboratoire de Chimie-Physique - Matière et Rayonnement -
Université Pierre et Marie Curie (Paris, France) 25 March 2003

326. **1905: Albert Einstein Annus Mirabilis. 2– du mouvement brownien à la théorie quantique du rayonnement**
Département de physique, de génie physique, et d'optique, 5 April 2005
Université Laval (Québec, Québec)

327. **Chaos Coming to Light: from billiards to microlasers**
Physics Department, Lakehead University (Thunder Bay, Ontario) 16 February 2006

328. **Le Chaos Mis en Lumière**
Département de physique, de génie physique, et d'optique, 21 Novembre 2006
Université Laval (Québec, Québec)

329. **Microcavities One 0 One - from billiards to microcavities and microsensors -**
Bioengineering Department, McGill University (Montréal) 19 Novembre 2008

330. **Towards a Dynamical Description of Epidemic Propagation on Complex Networks**
Department of Infectious Diseases and Epidemiology (DIDE), 23 March 2009
Imperial College (London, UK)

331. **From Billiards to Microlasers and Microsensors**
Max Planck Institute für Kernphysik (Heidelberg, Germany) 15 April 2009

332. **The Physics of Complex Networks – from Euler Bridges to Avian Flu –**
Institute Kolloquium
Max Planck Institute für Kernphysik (Heidelberg, Germany) 14 May 2009

333. **Optical Microcavities: Lasers without Mirrors, Sensors without Labels**
Institut für Physik, Humboldt Universität zu Berlin (Berlin, Germany) 20 May 2009

334. **La Physique des Réseaux Complexes - des Ponts d'Euler à la Grippe Aviaire**
CEGEP François-Xavier Garneau (Québec, Québec) 3 February 2010

335. **Scattering Description of the Resonant Modes of Open 2D Dielectric Cavities**
Pusan University (Pusan, Korea) 26 May 2011

336. **Entre l'Ordre et l'Aléatoire - de la nature du chaos et du chaos dans la nature -**
CEGEP Limoilou (Québec, Québec) 25 January 2012

337. **S and Q Matrices Reloaded: applications to open, inhomogeneous, and complex cavities**
Universidad Politécnica de Cartagena (Cartagena, Spain) 25 June 2013

338. **Adding SALT to Coupled Microcavities: the making of active photonic molecule lasers**
Institute of Microwave and Photonic Engineering of the Graz Technical University
(Graz, Austria) 7 July 2014

339. **Probability Generating Functions – tools for all seasons – take 1: introductory concepts**
Center for Brain and Cognition, Universitat Pompeu Fabra (Barcelona, Spain) 4 Novembre 2015

340. **Probability Generating Functions – tools for all seasons – take 2: applications to network theory**
Center for Brain and Cognition, Universitat Pompeu Fabra (Barcelona, Spain) 5 Novembre 2015

341. **The Growth of Scale-Independent Complex Networks – to reconstruct their past and to forecast their future –**
Center for Brain and Cognition, Universitat Pompeu Fabra (Barcelona, Spain) 10 Novembre 2015

342. **The Theory of Complex Networks – an introduction for physicists –**
Biomolecular Dynamics - Physikalisches Institut, Albert-Ludwigs-Universität Freiburg
(Freiburg, Germany) 14 January 2016

343. **Dynamical Network Analysis – take one –**
Biomolecular Dynamics - Physikalisches Institut, Albert-Ludwigs-Universität Freiburg
(Freiburg, Germany) 18 February 2016

344. **A Network Approach to Complex Systems – complexity made simple, ... but not simpler**
Center for Neural Dynamics and Physics Department, 14 April 2016
University of Ottawa (Ottawa, Canada)

345. **A Network Approach to Complex Systems – complexity made simple, ... but not simpler**
Department of Physics and Astronomy, 6 Octobre 2016
Western University (London, Ontario, Canada)

346. **Introduction to Complex Network Science – from graph theory to connectomics –**
Québec Brain Connectivity Summer School (Domaine Cataraqui, Québec, Québec) 14 May 2017

VII. Professional Activities

VII.A *Participations at Scientific Meetings*

1. IXth International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC).
   Uni. of Washington (Seattle, Washington) 24-30 July 1975

2. VIIIth Annual Meeting of the Division of Electron and Atomic Physics (DEAP).
   Uni. of Nebraska (Lincoln, Nebraska) 6-8 Dec. 1976

3. Xth International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC).
   Uni. de Paris (Paris, France) 21-27 July 1977

4. Satellite Meeting: 5 Problems in Electron-Molecule Interactions.
   Labo. de Collisions Atomiques et Moléculaires (Orsay, France) 28-30 July 1977

5. Computational Atomic and Molecular Physics.
   Uni. of Nottingham (Nottingham, England) 12-15 Sept. 1978

6. Atomic Collision Processes: A Conference in Honour of Sir Harry Massey.
   Uni. College London and the Royal Society (London, England) 20-22 Sept. 1978

7. Xth Annual Meeting of the Division of Electron and Atomic Physics (DEAP).
   Uni. of Wisconsin (Madison, Wisconsin) 28 Sept. - 1 Dec. 1978

8. 2-Day Symposium on Electron Molecule Collision Theory.
   Science Research Council, Daresbury Labo. (Daresbury, England) 22-23 Jan. 1979

9. International Seminar on High Energy Ion-Atom Collision Processes.
   Institute of Nuclear Research of the Hungarian Academy of Science (Debrecen, Hungary) 17-19 March 1981

10. Ist European Conference on Atomic Physics (ECAP).
    Uni. of Heidelberg (Heidelberg, Germany) 6-10 April 1981

11. 3. Arbeitstagung über Energiereiche Atomare Stöße.
    (Schonau, Schwarzwald, W. Germany) 24-29 Jan. 1982

12. 14th National Atomic and Molecular Physics Conference (ATMOL).
    Uni. of Newcastle upon Tyne (Newcastle upon Tyne, England) 30 March-1 April 1982

13. 4. Arbeitstagung über Energiereiche Atomare Stöße. (Oberstdorf, W. Germany) 30 Jan. - 5 Feb. 1983

14. XIIIth International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC).
    Freie Universitat Berlin (Berlin, W. Germany) 27 July - 2 August 1983

15. VIIIth International Seminar on Ion Atom Collisions (ISIAC).
    Rijkuniversiteit Utrecht (Utrecht, The Netherlands) 4-5 August 1983

16. 5. Arbeitstagung über Energiereiche Atomare Stöße.
    (Oberstdorf, W. Germany) 29 Jan. - 4 Feb. 1984

17. International Conference on the Physics of Highly Ionised Atoms.
    Uni. of Oxford (Oxford, England) 2-5 July 1984

18. Symposium on "Polarization and Correlation in Atomic Collision Complexes".
    Uni. Bielefeld (Bielefeld, W. Germany) 19-20 Nov. 1984

19. 6. Arbeitstagung über Energiereiche Atomare Stöße.
    (Oberstdorf, W. Germany) 27 Jan. - 2 Feb. 1985

20. IInd European Conference on Atomic and Molecular Physics (ECAMP).
    Free University (Amsterdam, The Netherlands) 15-19 April. 1985

21. Satellite Meeting on "Atomic Physics of Highly Charged Ions".
    Stanford Uni. (Palo Alto, California) 22-23 July 1985

22. XIVth International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC).
    Stanford Uni. (Palo Alto, California) 24-30 July 1985

23. IXth International Seminar on Ion Atom collisions (ISIAC).
    The Uni. of Arizona NAU Conference Center (Flagstaff, Arizona) 2-3 August 1985

24. 7. Arbeitstagung über Energiereiche Atomare Stöße.
    (Oberstdorf, W. Germany) 27 Jan. - 1 Feb. 1986

25. DFG Kolloquium uber "Theoretische Atom - und Molekülphysik".
    Zentrum für Interdisziplinäre Forschung (ZIF) (Bielefeld, W. Germany) 28-29 April. 1986

26. Joint Meeting of the Division of Atomic, Molecular and Optical Physics (DEAP) and the Division of Chemical Physics (DCP).
    Uni. of Oregon (Eugene, Oregon) 18-20 July 1986

27. Third International Workshop on Cross Sections for Fusion and Other Applications.
    Texas A& M University (College Stn, Texas) 6-8 Nov. 1986

28. 8. Arbeitstagung über Energiereiche Atomare Stöße. (Oberstdorf, W. Germany) 26-30 Jan. 1987

29. Workshop on Supercomputers in Atomic, Molecular and Optical Physics.
    Argonne National Lab. (Chicago, Illinois) 16-17 March 1987

30. XVth International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC).
    (Brighton, England) 22-28 July 1987

31. Xth International Seminar on Ion Atom Collisions (ISIAC).
    Taunus Convention Centre (Bad Soden, W. Germany) 30-31 July 1987

32. Computational Atomic and Nuclear at Physics at one Gigaflop.
    Oak Ridge National Lab. (Oak Ridge, Tennessee) 14-16 April 1988

33. Fourth International Workshop on Cross Sections for Fusion and Other Applications.
    Texas A&M University (College Stn, Texas) 3-5 Nov. 1988

34. 20th Annual Meeting of the Division of Atomic, Molecular and Optical Physics.
    Uni. of Windsor (Windsor, Ontario) 17-19 May 1989

35. XVIth International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC).
Grand Hyatt Hotel (New York, New York) 26 July - 1 August 1989

36. 58e Congrès de l'Association Canadienne-Francaise pour l'Avancement des Sciences (ACFAS).
Symposium - Dynamique Chaotique et Fractals. Université Laval (Québec, Québec) 17 May 1990

37. XVIIth International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC).
Sheraton Hotel (Brisbane,Australia) 10-16 July 1991

38. XIIth International Seminar on Ion-Atom Collisions (ISIAC).
ANA Hotel (Gold Coast, Australia) 18-19 July 1991

39. 23rd Annual Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP).
Westin Hotel (Chicago, Illinois) 20-22 May 1992

40. Joint 1992 Meeting of the Division of Atomic and Molecular Physics (DAMP) / Divison of Optical Physics (DOP) of the Canadian Association of Physicists (CAP).
Université Laval (Québec, Québec) 29-31 Oct. 1992

41. 14. Arbeitstagung über Energiereiche Atomare Stöße. (Riezlern, Austria) 25-29 Jan. 1993

42. XVIIIth International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC).
Aarhus Uni. (Aarhus, Denmark) 21-27 July 1993

43. XIIIth International Seminar on Ion-Atom Collisions (ISIAC).
Manne Siegbahn Institute of Physics (Stockholm, Sweden) 29-30 July 1993

44. 2ème Colloque sur la Dynamique des Ions, des Atomes, et des Molécules (DIAM).
Université d'Orléans (Bourges, France) 1-3 Sept. 1993

45. European Research Conference on Particle Solid Interactions.
Universidad del Pais Vasco (San Sebastian, Spain) 1-6 Oct. 1994

46. 26th Annual Meeting of the Division of Atomic, Molecular and Optical Physics (DAMOP) with the Division of Atomic and Molecular Physics (DAMP) of the Canadian Association of Physicists (CAP).
Uni. of Toronto (Toronto, Canada) 16-19 May 1995

47. 3rd SIAM Conference on Applications of Dynamical Systems. (Snowbird, Utah) 21-24 May 1995

48. Canadian American Mexican Canadian Physical Society (CAM 95) Annual Meeting.
Université Laval (Québec, Québec) 11-16 June 1995

49. International Symposium on Atomic and Molecular Dynamics in Photoionization (ISAMDIP 95).
Univesité Laval (Québec, Québec) 20 -23 July 1995

50. XIXth International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC).
Whistler Conference Center (Whistler, British Columbia) 26 July - 1 August 1995

51. 27th Annual Meeting of the Division of Atomic, Molecular and Optical Physics (DAMOP).
Uni. of Michigan (Ann Arbor, Michigan) 15-18 May 1996

52. 31st Annual Congress of the Canadian Association of Physicists (CAP).
Uni. of Ottawa (Ottawa, Ontario) 16-19 June 1996

53. 4th SIAM Conference on Applications of Dynamical Systems. (Snowbird, Utah) 18-22 May 1997

54. 32nd Annual Congress of the Canadian Association of Physicists (CAP).
Uni. of Calgary (Calgary, alberta) 8-11 June 1997

55. Joint 1997 Meeting of the Division of Atomic and Molecular Physics (DAMP) / Divison of Optical Physics (DOP) of the Canadian Association of Physicists (CAP).
National Research Council (Ottawa, Ontario) 30 Oct. - 1 Nov. 1997

56. Workshop on Periodic Orbits in Biology.
Krasnow Institute, George Mason Uni. (Fairfax, Virginia) 11-12 July 1998

57. 5th SIAM Conference on Applications of Dynamical Systems. (Snowbird, Utah) 23-27 May 1999

58. XXIth International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC).
(Sendai, Japan) 22-27 July 1999

59. 6th SIAM Conference on Applications of Dynamical Systems. (Snowbird, Utah) 20-24 May 2001

60. Workshop on Quantum Dynamics in Atomic and Molecular Physics.
Max Planck Institut für Physik Komplexer Systeme (Dresden, Germany) 13-14 June 2002

61. Colloque de la Division de Physique Atomique, Moléculaire et Optique (PAMO 2002).
Société Française de Physique (Bourges, France) 1-3 July 2002

62. 6ième Rencontre du Non-Linéaire 2003.
Institut Henri-Poincaré, Université Pierre et Marie Curie (Paris, France) 13-14 March 2003

63. 4ième Colloque sur le Chaos Temporel et le Chaos Spatio-Temporel.
UMR 6614 CORIA, Université de Rouen (Rouen, France) 15-16 Decembre 2003

64. 8th European Physics Society (EPS) Conference on Atomic and Molecular Physics.
(Rennes, France) 6-10 July 2004

65. 38th Annual Meeting of the Divison of Atomic, Molecular, and Optical Physics (DAMOP) of the American Physical Society. (Calgary, Alberta) 5-9 June 2007

66. Annual Congress of the Canadian Association of Physicists (CAP).
Uni. of Saskatchewan (Saskatoon, Saskatchewan) 17-20 June 2007

67. XXVth International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC).
(Freiburg, Germany) 25-31 July 2007

68. Annual Congress of the Canadian Association of Physicists (CAP).
Uni. Laval (Québec, Québec) 8-11 June 2008

69. 5th International School and Conference on Network Science (NetSci 10).
(Boston and Cambridge, Massachusetts) 10-14 May 2010

70. 12th International Conference on Transparent Optical Networks (ICTON 10).
Technische Universität (Munich, Germany) 27 June - 1 July 2010

71. 3rd International Topical Meeting on Nanophotonics and Metamaterials (NanoMeta).
Seefeld ski resort (Tirol, Austria) 3-6 January 2011

72. International Workshop on Microcavities and their Applications (WOMA11). Pusan National University (Pusan, Korea) 24-27 May 2011

73. International Conference on Nanoscience + Technology (ICN+T). (Paris, France) 23-27 July 2012

74. 44th Annual Meeting of the Division of Atomic, Molecular and Optical Physics (DAMOP). (Québec, Canada) 3-7 June 2013

75. 8th International School and Conference on Network Science (NetSci 13). (Copenhagen, Denmark) 3-7 June 2013

76. 15th International Conference on Transparent Optical Networks (ICTON 13). (Cartagena, Spain) 23-27 June 2013

77. 16th International Conference on Transparent Optical Networks (ICTON 14). (Graz, Austria) 6-10 July 2014

78. 9th International School and Conference on Network Science (NetSci 14). (Berkeley, California) 2-6 June 2014

79. 10th International School and Conference on Network Science (NetSci 15). (Zaragoza, Spain) 1-5 June 2015

80. 11th International School and Conference on Network Science (NetSci 16). (Seoul, Korea) 30 May - 3 June 2016

81. Québec Brain Connectivity Summer School. (Domaine Cataraqui, Québec, Québec) 14 - 15 May 2017

82. 1st Sentinel North Annual meeting (Canada First Excellence Program) (Chateau Laurier, Québec, Québec) 29 - 30 August 2017

83. 6th International Conference on Complex Networks and Their Applications (Lyon, France) 29 Nov. - 1 Dec. 2017

84. 13th International School and Conference on Network Science (NetSci 18). (Paris, France) 11 -15 June 2018

85. 2nd Sentinel North Annual Meeting (Canada First Excellence Program) (Voltigeurs de Québec Armoury and the Hôtel Château-Laurier, Québec, Québec) 27 - 30 August 2019

86. 3rd Sentinel North Annual Meeting (Canada First Excellence Program) (Lévis Convention Center, Lévis, Québec) 26 - 28 August 2019

87. 8th International Conference on Complex Networks and Their Applications (Lisboa, Portugal) 10 - 12 Dec. 2019

VII.B *Research Periods at Foreign International Institutes*

1. Laboratoire d'Astrophysique, Université de Bordeaux I
   Talence, France (A. Salin) — Octobre 1981
2. Physique Théorique, Faculté des Sciences, Université Libre de Bruxelles
   Bruxelles, Belgium (C.J. Joachain) — March 1983
3. Sektion Physik, Universität München
   Garching, W. Germany (H.-D. Betz) — March 1983
4. Bereich Kern - und Strahlenphysik
   Hahn-Meitner-Institut für Kernforschung
   Berlin, W. Germany (J. Eichler) — July 1983
5. Institut für Atom - und Festkörperphysik
   Freie Universität Berlin, Berlin, W. Germany (H. Gabriel) — January 1984
6. Laboratoire des Collisions Atomiques (*Professeur Associé*)
   Université de Bordeaux I, Talence, France (R. Gayet, A. Salin) — March-April 1986
7. Fakultät für Physik, Universität Freiburg — January 1987
   Freiburg, W. Germany (J.S. Briggs) — June-August 1987, June-August 1988
8. Instituto de Física Rosario (*Profesor Titular*)
   Universidad Nacional de Rosario, Rosario, Argentina (R.D. Rivarola) — Novembre 1991
9. Zentralabteilung Technik, Siemens AG — Juillet 1997
   München, Germany (G. Deco, B. Schürmann) — March 2000, May 2000
10. Theoretical Quantum Dynamics (*Gast Professor*)
    Fakultät für Physik, Universität Freiburg
    Freiburg, Germany (R. Blümel, J.S. Briggs) — January 1998
11. Groupe de Physique des Solides (*Professeur Invité*)
    Equipe des Interactions Ion-Matière
    Universités Paris VI et Paris VII — May 1998
    Paris, France (J.P. Rozet, D. Vernhet) — 15 Nov. - 15 Dec. 1999
12. Stochastische Dynamische Systeme (*Gast Professor*)
    Fakultät für Physik, Universität Freiburg
    Freiburg, Germany (J. Honerkamp, J. Timmer) — June 1999 - August 2000
13. Laboratoire de Physico-Chimie Moléculaire (*Professeur Invité*)
    Université de Bordeaux I, Talence, France (J.C. Rayez, A. Salin) — 15 June - 15 July 2001
14. Laboratoire de Dynamique des Ions, Atomes, et Molécules (*Professeur Associé*)
    Université Pierre et Marie Curie (Paris VI)
    Paris, France (M. Glass-Maujean, R. McCarroll) — Sept. 2001 - August 2002
15. Centre de Physique Moléculaire Optique et Hertzienne (UMR CNRS 5798) (*Professeur Invité*)
    Université Bordeaux I, Talence, France (E. Brasselet, E. Freysz) — Sept. 2008

16. Max Planck Institut für Kernphysik (*Gast Professor*)
    Heidelberg, Germany (J. Ullrich) Oct. 2008 - June 2009

17. Physikalisches Institut, Albert-Ludwigs-Universität Freiburg (*Gast Professor*)
    Freiburg, Germany (T. Schätz, G. Stock) Sept. 2015 - Aug. 2016

18. Center for Brain and Cognition, Computational Neuroscience Group (*Guest professor*)
    Department of Information and Communication Technologies, Universitat Pompeu Fabra
    Barcelona, Spain (G. Deco) Nov. 2015, Feb.. 2016

VII.C *Technology Transfer: beyond the ivory tower*

Nous nous sommes lancés, un peu par hasard, dans une entreprise de transfert technologique qui a duré de 1997 à 2002. J'étais alors co-actionnaire (et directeur scientifique) d'une plate-forme R&D, nommée Technologies Dynamicos Inc., (ci après Dynamicos pour *Dynamics for Complex Systems*), qui a servi à financer en partie les activités de recherche de mon équipe à l'UL. Cette société avait pour mission la *détection de signaux précurseurs d'évenements dynamiques et le contrôle des systèmes complexes sous-jacents*, ainsi que le développement et la commercialisation de solutions logicielles intégrables. Dynamicos a négocié avec Siemens une licence mondiale reliée à deux brevets pour un volet diagnostique ("monitoring") qui servait à la détection précoce et au traitement de crises d'épilepsie. Dynamicos visait d'autres brevets à plus long terme.

Sans entrer dans les détails [Deco et Dubé (1997)], le concept de base consistait (et consiste toujours) en une *solution non-pharmaceutique* pour la détection et le traitement de maladies comme l'épilepsie. La méthode utilisée était adaptative, individuelle et temporellement ponctuelle. Elle devait permettre d'identifier de façon fiable un signal permettant d'anticiper et/ou de contrôler un évènement dynamique à partir d'un ensemble de signaux complexes.

Les objectifs à court terme étaient i. la validation et l'optimisation du concept; ii. l'optimisation de l'aspect mathématique des algorithmes; iii. la validation de la sensibilité et de la spécificité des algorithmes avec un nombre limité de données cliniques (EEG et ECoG); et finalement, iv. la mise au point de l'interface avec un EEG clinique.

Les objectifs à moyen et long terme (5 ans) étaient par contre i. la réalisation des essais cliniques pour répondre aux exigences de réglementation (e.g. FDA); ii. la mise en marché d'un algorithme pour l'aide à la détection automatique de crises d'épilepsie; iii. la mise au point d'un moniteur portable commercialisable pour la détection précoce; et iv. la mise au point d'un implant cérébral commercialisable permettant la détection et la suppression de crises épileptiques.

La beauté d'un tel transfert technologique était d'une part, la préservation de l'intégrité du milieu universitaire où résidait l'équipe-recherche ($\mathcal{LJD}$ et ses collaborateurs), et d'autre part, la possibilité de voir une idée devenir réalité par le biais de l'équipe-développement qui se trouvait (pour des raisons évidentes) hors campus; le tout étant financé par les fonds monétaires à risques. Ce projet a d'ailleurs fait partie des deux *premiers* projets supportés par la Société de valorisation de la recherche universitaire associée, Gestion SOVAR Inc. !

Cette aventure s'est terminée assez brusquement au lendemain du scandale Enron où les intervenants des capitaux à risques ont décidé (sagement !) de réexaminer tous les dossiers de transfert technologique encore en négociation. Nous étions à ce moment trop loin du 6 M$ nécessaires pour entreprendre les essais cliniques, et nous avons jugé qu'il était opportun de passer à autres choses ...

VII.D *Financial Support of Research*

Title : **International Travel Grant**
Source : Deutsche Forschungsgemeinschaft
Amount : 7 000 DM
Period : March-April 1983
Details : Travel and living expenses
for an invited researcher (Dr. J. Burgdörfer) at Fakultät für Physik, Universität Freiburg, with Dr. R. Bruch.

Title : **Diagnostik heißer Laborplasmen-plasmarelevante atomare Daten**
Source : Deutsche Forschungsgemeinschaft
Amount : 20 000 DM
Period : July-Decembre 1985
Details : Salary of a research associate
for a 6 months period with Prof. J.S. Briggs.

Title : **Internation Travel Grant**
Source : Deutsche Forschungsgemeinschaft
Amount : 4 000 DM
Period : August 1985
Details : Partial travel costs for the presentation of 3 invited talks during:
1. "Satellite Meeting on Atomic Physics of Highly Charged Ions"
22-23 July 1985, Palo Alto, California;
2. "XIVth International Conference on the Physics of Electronic and Atomic Collisions", 24-30 July 1985, Palo Alto, California;
3. "IXth International Seminar on Ion Atom Collisions"
2-3 August 1985, Flagstaff, Arizona.

Title : **Charged Particles Interactions with Gases and Solids**
Source : Natural Sciences and Engineering Research Council of Canada
Amount : $ 42 000 CDN
Period : June 1986-June 1989
Details : Personal Research Grant No. A9015

Title : **Etude des Atomes et des Molécules en Phase Gazeuse ou Solide**
par des Techniques Spectrométriques
Source : Fonds pour la Formation de Chercheurs et l'Aide à la Recherche (FCAR)
Amount : $ 60 000 CDN
Period : June 1986 - June 1988
Details : Programme Equipe et Seminaires, Volet Equipes
with M. Baril, E.J. Knystautas, M. Larzillière, D. Roy.

Title : **Non-Perturbative Theory of Ion-Atom Collisions**
Source : Natural Sciences and Engineering Research Council of Canada
Amount : 10 hrs CPU sur OCLSC Cray X-MP (Toronto)

Period : 1988-1989
Details : Access to Supercomputing No. 123

Title : **Etude des Atomes et des Molécules en Phase Gazeuse ou Solide**
Source : Fonds pour la Formation de Chercheurs et l'Aide à la Recherche (FCAR)
Amount : $ 105 690 CDN
Period : June 1988 - June 1991
Details : Programme Equipe et Seminaires, Volet Equipes
with E.J. Knystautas, M. Larzillière, D. Roy.

Title : **Dynamics of Ion-Atom, Ion-Surface Collisions**
Source : Natural Sciences and Engineering Research Council of Canada
Amount : $ 55 488 CDN
Period : June 1989-June 1992
Details : Personal Research Grant OGPIN 015.

Title : **- DYNAMIX -**
Outil Informatique pour l'Apprentissage des Systèmes Nonlinéaires
Source : Faculté des Sciences et de Génie, Université Laval
Amount : $ 6 600 CDN
Period : Septembre 1990-Septembre 1991
Details : Programme Facultaire d'Innovation Pédagogique 1990-1991

Title : **Physique des Atomes et des Molécules en Phase Gazeuse ou Solide**
Source : Fonds pour la Formation de Chercheurs et l'Aide à la Recherche (FCAR)
Amount : $ 93 160 CDN + $ 6 300 CDN (Equipment)
Period : June 1991 - June 1994
Details : Programme Equipe et Seminaires, Volet Equipes
with E.J. Knystautas, M. Larzillière, D. Roy.

Title : **Dynamics of Ion-Atom, Ion-Crystal Collisions**
Source : Natural Sciences and Engineering Research Council of Canada
Amount : $ 74 000 CDN
Period : June 1992-June 1996
Details : Personal Research Grant.

Title : **Dynamique des Interactions Ions-Matière**
Source : Université Bordeaux I, partie Sciences
Amount : FF 96 964,58
Period : 1993
Details : Bourse pour la Qualité de la Recherche (BQR)
with R. Gayet (Laboratoire des Collisions Atomiques).

Title : **Physique des Atomes et des Molécules en Phase Gazeuse ou Solide**
Source : Fonds pour la Formation de Chercheurs et l'Aide à la Recherche (FCAR)

Amount : $ 102 600 + $ 7 314 CDN (Equipment)
Period : June 1994 - June 1997
Details : Programme Equipe et Seminaires, Volet Equipes
with E.J. Knystautas, M. Larzillière, D. Roy.

Title : **- CHAOTICA -**
Outil d'Apprentissage de Dynamique Nonlinéaire et Chaos
Source : Département de Physique et Faculté des Sciences et de Génie
Université Laval
Amount : $ 5 000 CDN
Period : Septembre 1994-Septembre 1995
Details : Programme Institutionnel de Soutien à la Pédagogie 1994-1995

Title : **Budget Spécial de la Recherche (BSR)**
Source : Faculté des Sciences et de Génie, Université Laval
Amount : $ 4 000 CDN
Period : June 1994 - May 1995
Details : Travel and living expenses
of Prof. D.P. Dewangan, Physical Research Laboratory,
Navrangpura, Ahmedabad, India

Title : **Collisional Dynamics in Ion-Atom, Ion-Solid Interactions**
Source : Natural Sciences and Engineering Research Council of Canada
Amount : $ 41 735 CDN
Period : June 1996-June 2000
Details : Personal Research Grant.

Title : **Physique des Atomes et des Molécules en Phase Gazeuse ou Solide**
Source : Fonds pour la Formation de Chercheurs et l'Aide à la Recherche (FCAR)
Amount : $ 91 512 CDN
Period : June 1997 - June 2000
Details : Programme Equipe et Seminaires, Volet Equipes
with E.J. Knystautas, M. Larzillière, D. Roy.

Title : **Technologies Dynamicos Inc.**
Source : Société de valorisation de la recherche universitaire associée (SOVAR)
Amount : $ 354 000 CDN
Period : 1997 - 2002
Details : Technology Transfer - Project Epilepsium.

Title : **Complex Dynamical Systems – Their Study and Their Control**
Source : Natural Sciences and Engineering Research Council of Canada
Amount : $ 60 000 CDN
Period : June 2000-June 2004
Details : Personal Research Grant.

Title : **Physique des Atomes et des Molécules en Phase Gazeuse ou Solide**
Source : Fonds pour la Formation de Chercheurs et l'Aide à la Recherche (FCAR)
Amount : $ 120 000 CDN
Period : June 2000 - June 2003
Details : Programme Equipe et Seminaires, Volet Equipes
with E.J. Knystautas, M. Larzillière, D. Roy.

Title : **Nomlinear Dynamics of Optical Proceses in Confined Systems**
Source : Natural Sciences and Engineering Research Council of Canada (NSERC)
Amount : $ 100 000 CDN
Period : June 2004 - June 2009
Details : Individual Discovery Grant.

Title : **Mathematical Modeling of Pandemic Influenza: A Bridging Science to Inform Public Policy**
Source : Canadian Institutes for Health Research (CIHR)
Amount : $ 388 528 CDN
Period : Oct. 2006 - Sept. 2009
Details : Operating Grant
with B. Pourbohloul (PI), D.M. Skowronski (co-PI), M. Petric (co-PI); D.J. Earn, R.Z. Gustafson, J.M. Langley, J.E. McElhaney, A.J. McGeer, L.A. Meyers.

Title : **Une nouvelle classe de microcavités optiques – résonateurs diélectriques inhomogènes –**
Source : Fonds québécois de la recherche sur la nature et les technologies (FQRNT)
Amount : $ 135 000 CDN + $ 46 244 CDN (Equipment)
Period : June 2007 - June 2010
Details : Programme Equipe
with Y.-A. Peter (Ecole Polytechnique de Montréal).

Title : **Label free high sensitivity detection of bacteria by phages using functionalized optical microcavities**
Source : Natural Sciences and Engineering Research Council of Canada (NSERC)
Amount : $ 517 012 CDN
Period : Oct. 2008 - Sept. 2011
Details : Strategic Project Grant
with Y.-A. Peter (Ecole Polytechnique de Montréal) and J. L. Nadeau (McGill University)

Title : **Etude dynamique de systèmes et de réseaux complexes**
Source : Natural Sciences and Engineering Research Council of Canada (NSERC)
Amount : $ 175 000 CDN
Period : June 2009 - June 2014
Details : Individual Discovery Grant.

Title : **Etude dynamique de systèmes et de réseaux complexes - prise 2**
Source : Natural Sciences and Engineering Research Council of Canada (NSERC)

Amount : $ 125 000 CDN
Period : June 2014 - June 2019
Details : Individual Discovery Grant.

Title : **Network Analysis of Umbrella Species: Assessing the Integrity of Northern Ecosystems**
Source : Natural Sciences and Engineering Research Council of Canada (NSERC)
Amount : $ 489 000 CDN
Period : March 2017 - April 2020
Details : Canada First Excellence Fund: Sentinel North Strategy (co-researcher), with D. Fortin (Biology, U. Laval), F. Maps (Biology, U. Laval), and L.-P. Rivest (Mathematics and Statistics, U. Laval)

Title : **The Resilience of Complex Networks: Identifying Critical Indicators for Efficient Targeted Interventions**
Source : Natural Sciences and Engineering Research Council of Canada (NSERC)
Amount : $ 334 000 CDN
Period : March 2017 - April 2020
Details : Canada First Excellence Fund: Sentinel North Strategy (co-principal investigator), with S. Hardy (co-PI, Computer Science, U. Laval), D. Côté (Physics, U. Laval), P. de Koninck (Microbiology, U. Laval), P. Desrosiers (Physics, U. Laval), and N. Doyon (Mathematics, U. Laval)

Title : **Complex Systems: Structure, Function and Interrelationships in the North**
Source : Natural Sciences and Engineering Research Council of Canada (NSERC)
Amount : $ 510 000 CDN
Period : March 2017 - April 2020
Details : Canada First Excellence Fund: Sentinel North Strategy, Thematic Project (co-leader), with R. Thérrien (Geology and Geological Eng., U. Laval), and L. Rusch (Electrical Eng., U. Laval)

VIII. Miscellaneous

- In depth knowledge of **Français, English, Deutsch**.
- **Oenology**, an interest for certain and a certain way of life.
- **Contrepèterie** ou l'art de décaler les sons que débite notre bouche: une seconde nature. The French pendant to *Spoonerism*.