19/11/1990 (26)

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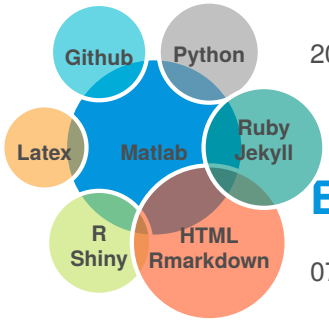
Programming



Languages

French ★★★★★
English ★★★★☆

Contacts

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David Granjon

PhD in Mathematical Physiology

Education

2013 - 2016 **PhD in Life Sciences** Université Pierre et Marie Curie, Paris, Université de Lausanne, Switzerland
Title of the Thesis: "Modeling of Calcium Homeostasis in the Rat and its Perturbations".

Building of a mathematical model describing calcium homeostasis, including its analysis and simulation of pathologies.

Thesis advisors: Dr. Aurélie Edwards and Pr. Olivier Bonny.

2011 - 2013 **Master's Degree in Ecosiences, MIV** Université Claude Bernard (UCBL), Lyon
Main subjects: Mathematics, Theoretical Ecology and Programming.

2010 - 2011 **Licence (3 year degree) in Mathematics and Computer Sciences for the Living (MIV)** Université Claude Bernard (UCBL), Lyon
Main subjects: Mathematics, Ecology and Computer Sciences.

2008 - 2010 **Preparatory School for Engineers** Lycée Claude Fauriel, Saint Etienne
Main subjects: Mathematics, Physics, Biology, Geology.

Experience

07/13 - 08/13 **Internship in a Team of Theoretical Physiology**
Centre for Applied Mathematics in Bioscience and Medicine (CAMBAM), Mc Gill University, Montreal, Canada
Improvements to the model developed during the previous internship.

Supervisors: Dr. Moisés Santillan, Pr. Michael Mackey.

01/13 - 07/13 **Internship in a Laboratory of Applied Mathematics**
Institut National de Recherche en Informatique et Automatique (INRIA), Team Dracula, Lyon
Title of the project: "Multiscale modeling of Zebrafish Somitogenesis"
Development of a model accounting for the intra-cellular oscillator in each cell during somitogenesis.

Supervisors: Dr. Laurent Pujo-menjouet (UCBL), Pr. Michael Mackey (Mc Gill, Canada).

03/12 - 07/12 **Internship in a Laboratory of Applied Mathematics**
Institut National de Recherche en Informatique et Automatique (INRIA), Team Dracula, Lyon
Title of the project: " Mathematical modeling of somitogenesis, reaction-diffusion systems".
Analysis of two mathematical models: cell-cycle and clock/wavefront models.

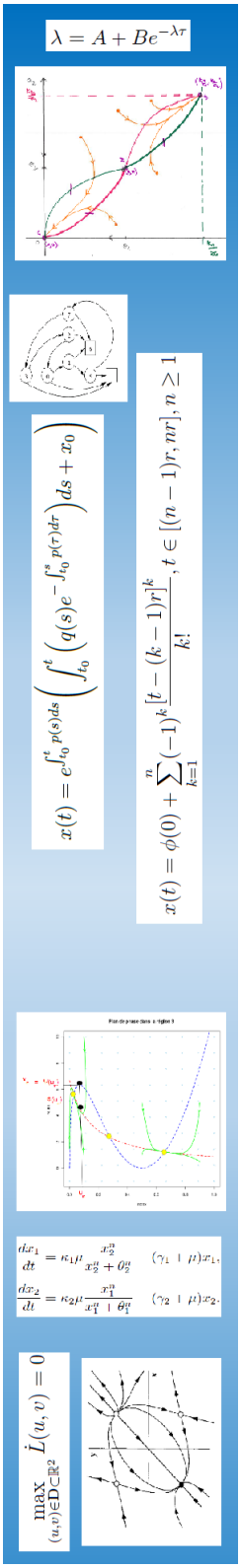
Supervisor: Dr. Laurent Pujo-Menjouet (UCBL).

06/11 - 08/11 **Internship in a Laboratory of Theoretical Ecology**

Laboratoire de Biométrie et Biologie Evolutive (LBBE), Team Modélisation et Ecotoxycologie Prédictive (MEPS), Lyon

Title of the project: " Ecotoxicology of Daphnia Magna ".
Study of the impact of pollution on the growth of Daphnia Magna through mathematical models.

Supervisors: Pr. Sandrine Charles (UCBL), Pr. Marie Laure Delignette Muller (Ecole Nationale Vétérinaire de Lyon).



Publications

Coupling between Phosphate and Calcium Homeostasis: A Mathematical Model
D. Granjon, O. Bonny, A. Edwards
American Journal of Physiology-Renal Physiology, 2017.

A Model of Calcium Homeostasis in the Rat
D. Granjon, O. Bonny, A. Edwards
American Journal of Physiology-Renal Physiology, 311 (5), 2016.

Homéostasie du Calcium
D. Granjon, A. Edwards, O. Bonny
Textbook de Néphrologie. Submitted 02/2016.

Conferences and Talks

5/05/17 **Lunch Seminar** — Institute of Physiology, Zurich (UZH)
Oral presentation: "A mathematical model of calcium and phosphate homeostasis in the rat and its perturbations".

29/06/16 - 1/07/16 **Meeting of the Federation of Physiological Societies and the French Physiological Society** — Centre de Recherche des Cordeliers, Paris
Poster presentation: "Role of the rapidly exchangeable calcium pool in bone in calcium homeostasis".

23/03/16 - 24/03/16 **Annual Franco-Swiss Meeting on Electrolytes Metabolism and Renal Physiology** — Inselspital, Bern
Oral presentation: "A model of Ca/P_i homeostasis in the Rat".

25/02/16 - 27/02/16 **NCCR Kidney.CH Retreat 2016** — Murten, Switzerland
Poster first author:"Role of the bone rapidly exchangeable calcium pool in calcium homeostasis".

29/09/15
- 02/10/15 **Société Francophone de Dialyse/Société de Néphrologie** Lyon, France
Poster first author: ”Consequences of primary hyperparathyroidism on renal calcium excretion”.

19/03/15
- 20/03/15 **Annual Franco-Swiss Meeting on Electrolytes Metabolism and Renal Physiology** Centre de Recherche des Cordeliers, Paris
Oral presentation: ”A Model of Calcium Homeostasis in the Rat”.

6/02/15 **Groupe de travail Modélisation Numérique et Images** MAP5, Paris Descartes
Oral presentation: ”Calcium Homeostasis modeling and perturbations”.

19/03/14
- 20/03/14 **Annual Franco-Swiss Meeting on Electrolytes Metabolism and Renal Physiology** CHUV, Lausanne
Oral presentation: ”A Simplified Model of Plasma Calcium Regulation by PTH”.

3/06/13
- 6/06/13 **Conference " In honour of Michael Mackey's 70th birthday "** Lyon, France
Oral presentation: ”Oscillatory dynamic during zebrafish somitogenesis”.

Mentoring

11/15
- 06/16 **Student Supervisor** Centre de Recherche des Cordeliers, Paris
Supervised a high school student for the ”Young Researchers” program. Introduction to modeling and experimentations.

Detailed Knowledge

- **Web-based Application Development** ★★★★★
I develop beautiful and powerful web applications using R-Shiny and HTML so as to incorporate my mathematical models and make them accessible to biologists.

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- **Dynamical Systems Analysis** ★★★★★
Steady states, linearization, stability, Lyapunov theory, limit cycle existence (Poincaré-Bendixon theorem), bifurcation analysis (Hopf bifurcation), sensitivity analysis and some control theory.
- **Differential Equations Theory** ★★★★☆
Ordinary differential equations, partial differential equations, delay differential equations basic properties and important results.
- **Algebra and Analysis** ★★★★☆
- **Statistics** ★★★★☆

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- **Physiology** ★★★★☆
  Calcium and phosphate metabolism, renal physiology.

- **Ecology** ★★★★☆
  Basic properties of ecosystems, evolution theory, prey-predators interactions, host-parasites systems.

Updated: 26/08/2017