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Address

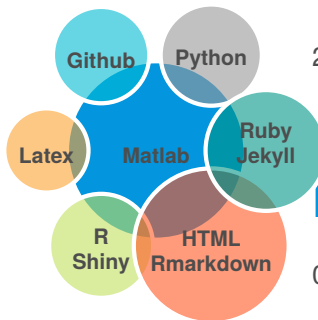
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Personal Website

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 Ecosciences, 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 Ecotoxicologie 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

5/12/16

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".

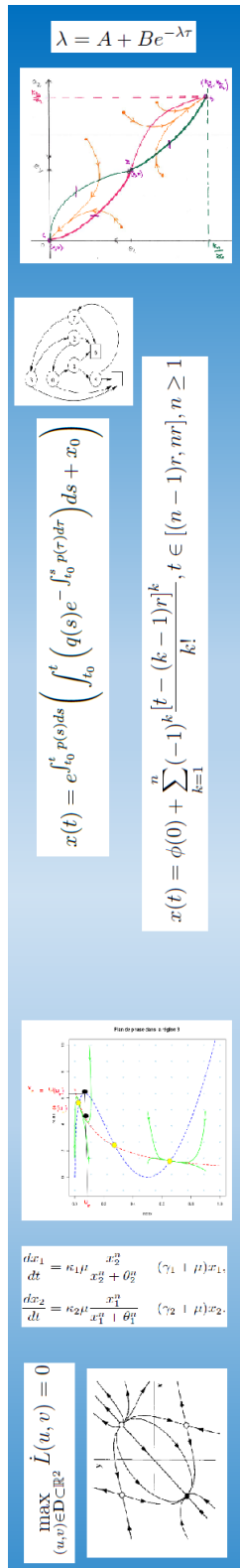
25/02/16

- 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.

- **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** ★★★★★

- **Physiology** ★★★★★

Calcium and phosphate metabolism, renal physiology.

- **Ecology** ★★★★★

Basic properties of ecosystems, evolution theory, prey-predators interactions, host-parasites systems.

Updated: 26/08/2017