Curriculum Vitæ- Sten Madec

- Born on the 19th of april 1983 in Auray, France

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PROFESSIONAL EXPERIENCE AND EDUCATION

2011– Lecturer at the LMPT, university of Tours

2011-2012 ATER at the IECN, university of Nancy

2010-2011 ATER at the IMB, university of Bordeaux

2007–2011 **PhD in Applied Mathematics at the University of Rennes 1**

Thesis title : *Hétérogénéité spatiale en dynamique des populations*

Supervisors :

Prof. François CASTELLA

Dr. Cédric WOLF

Members of the jury

Prof. Yvan LAGADEUC

Prof. Jean-Christophe POGGIALE

Prof. Martine MARION

Dr. Arnaud DUCROT

Prof. François CASTELLA

Dr. Cédric WOLF

The thesis is available online : `https://tel.archives-ouvertes.fr/tel-00600942/`

2006–2007 Master thesis at the university of Rennes 1,

SCIENTIFIC ACTIVITIES

I model, study and simulate dynamical system from the life sciences. I work through various collaborations with mathematician, pharmacists and biologists from Orleans, Rennes, Bordeaux, Tours and Barcelone.

Key words : Biomathematics, Reaction-diffusion systems, dynamical systems, singular perturbations

- 2017. Supervisor of the Master Thesis of Loan Hoàng *'Bifurcation in the chemostat'*
- 2017– Member of the ANR project MFG : `http://anr-mfg.math.cnrs.fr/`
- 2016– Co-Organisator of the **workgroup Math-bio/Orléans-Tours**
  → Organisation of a monthly seminar
  → Coordination of peoples interested in biomath in Orléans and Tours
- 2016– Co-responsable of the **federation CaSciModOT** in Tours
  → Organisation of an annual workshop (last one in june 22, 2017)
  → Gestion of funds
- 2013– Various Collaborations with mathematician, pharmacist and biologist from Orleans, Rennes, Bordeaux, Tours and Barcelone

LIST OF PUBLICATIONS

(1) with J. Casas, G. Barles and C. Suppo *Bistability induced by generalist natural enemies can reverse pest invasions*
Journal of mathematical biology, 1–33 (2017).

(2) with E. Gjini *A slow-fast dynamic decomposition links neutral and non-neutral coexistence in interacting multi-strain pathogens*
Theoretical Ecology 10 (1), 129–141 (2016).

(3) with F. Castella and Y. Lagadeuc *Global behavior of N competing species with strong diffusion : diffusion leads to exclusion*
Applicable Analysis, 95 (2), 341–372, (2015).

(4) with F. Castella *Coexistence phenomena and global bifurcation structure in a chemostat-like model with species-dependent diffusion rates*
Journal of Mathematical Biology, 68 (1-2), 377–415, (2014).

(5) with A. Ducrot A *Singularly perturbed elliptic system modelling the competitive interactions for a single resource*
Mathematical Models and Methods in Applied Sciences, 23, 1939–1977 (2013).

(6) with C. Wolf C *A multi-structured epidemic problem with direct and indirect transmission in heterogeneous environments*
Journal of Biological Dynamics, 6 (2), 235–266 (2012).

SOME TALKS

- June 2017 IGC (Lisbon)
  Generalist predator can reverse pest invasions
- June 2017 FDP (Tours)
  Quelques interactions récentes entre les mathématiques et la biologie
- February 2017 DSABNS (Évora)
  A slow-fast dynamic decomposition links neutral and non-neutral coexistence in interacting multistrain pathogens
- December 2015 MODEMIC (Montpellier)
  Prédateur généraliste et espèce invasive
- February 2015 DSABNS (Lisbon)
  Generalist predator can control the spatial propagation of an invasive prey
- August 2014 MPDE'14 (Torino)
  Generalist predator can control the invasion of a pest
- August 2013 MPDE'13 (Oznabrück)
  Competition for a single resource in an heterogeneous environment with fast migration
- January 2012 MODEMIC (Montpellier)
  Sur un modèle de compétition pour une ressource en environnement hétérogène
- June 2010 CMPD3 (Bordeaux)
  Central manifold in the unstirred chemostat : how large diffusion leads to exclusion

OTHER ACTIVITIES

- Two notes on the daily blog "Mathématiques pour la planète Terre" (2013)
  → Le paradoxe du plancton
  → Maximiser la biodiversité : la voie du milieu

- Two articles for the local CNRS journal Microscoop
  → Penser global, agir local... (2013)
  → Maximiser la biodiversité (2014)

- Knowledge sharing : Regular talks in local seminars
  Talks for second years students

Referent researcher in middle school and high school for Math En Jeans

- Around 200 hours of teaching each years including
  Functional analysis (Master 1 of mathematics, 2013-2015).
  Dynamical system in biology (Master 2 of mathematics, 2014).
  Numerical analysis (Licence 3 of mathematics, 2013)
  Scientifics computation (Licence 2 of mathematics, 2014-2017)
  Fundamental maths (Licence of economics, 2011-2017)