# Rodrigo G. Schaefer

PH.D STUDENT IN APPLIED MATHEMATICS

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## Research interests

### Arnold Diffusion
CURRENT RESEARCH
- Arnold diffusion in an *a priori unstable* Hamiltonian system.

### Celestial Mechanics
- N-body problem on surfaces

## Education

### Ph.D in Applied Mathematics
UNIVERSITAT POLITÈCNICA DE CATALUNYA

*Barcelona, Spain*

*Sep. 2014 - PRESENT*
- Title: Global Instability in Hamiltonian Systems
- Advisor: Amadeu Delshams
- Got a CNPq Scholarship (Brazil).

### M.S. in Mathematics
UNIVERSIDADE FEDERAL DO RIO DE JANEIRO

*Rio de Janeiro, Brazil*

*Mar. 2012 - May 2014*
- Master's thesis: A dinâmica de N corpos sobre superfícies : um exemplo para 2 corpos
- Advisor: Stefanella Boatto
- Got a FAPERJ - Scholarship which is given to the two best students in Master program - Dept. of Math

### B.S. in Mathematics
UFRJ (UNIVERSIDADE FEDERAL DO RIO DE JANEIRO)

*Rio de Janeiro, Brazil*

*Mar. 2008 - Jan 2012*

## Publications

### Arnold diffusion for a complete family of perturbations
DELSHAMS, A. AND SCHAEFER, R.G.

*2017*
- Regular and Chaotic Dynamics

### N-body dynamics on closed surfaces: the axioms of mechanics
BOATTO, S., DRITSCHEL, D.G. AND SCHAEFER, R.G.

*2016*
- Proceedings of the Royal Society of London A: Mathematical, Physical and Engineering Science

### PREPRINT

### Arnold diffusion for a complete family of perturbations with two independent harmonics
DELSHAMS, A. AND SCHAEFER, R.G.

*2017*
- To appear in Discrete and Continuous Dynamical Systems

## Work experience

### Temporary lecturer
UNIVERSIDADE FEDERAL DO RIO DE JANEIRO

*Rio de Janeiro, Brazil*

*Mar. 2014 - Aug. 2014*
- Differential and Integral Calculus
- Linear Algebra

**Teaching assistant**  *Rio de Janeiro, Brazil*
Universidade Federal do Rio de Janeiro  *2009 - 2011*
  • Linear Algebra

# Presentation

## Invited talks

**Geometry, Dynamics, Integrable Systems**  *Moscow, Russia*
Scattering maps and Global Instability in Hamiltonian Systems  *2018*

**IV Congreso de Jóvenes Investigadores-Real Sociedad Matemática Española**  *Valencia, Spain*
Global Instability in Hamiltonian Systems  *2017*

**JuniorGesta**  *Barcelona, Spain*
Global instability in Hamiltonian Systems  *2016*

## Other presentations

**Satellite Dynamics and Space Missions: Theory and Applications of Celestial Mechanics**  *San Martino al Cimino, Italy*
Arnold Diffusion for several examples using Scattering maps (poster)  *2017*

**Llavefest: A Broad Pperpective on Finite and Infinite Dimensional Dynamicsl Systems**  *Barcelona, Spain*
Arnold Diffusion for several examples using Scattering maps (poster)  *2017*

**14th Winter School of the Spanish Dance Network**  *Vigo, Spain*
Arnold Diffusion for several examples using Scattering map (poster)  *2017*

**Barcelona UB-UPC DSG Seminar**  *Barcelona, Spain*
Global instability in Hamiltonian Systems and several Scattering maps  *2016*

**13th Winter School of the Spanish Dance Network**  *Seville, Spain*
Arnold dffusion using several combinations of Scattering maps (poster)  *2016*

**14th Workshop on interactions between Dynamical Systems and PDE's.**  *Barcelona, Spain*
Arnold dffusion using several combinations of Scattering maps (poster)  *2016*

**II BGSMath Junior Meeting**  *Barcelona, Spain*
Global instability in Hamiltonian Systems  *2016*

**CNMAC - Congresso Nacional de Matemática Aplicada e Computacional**  *Águas de Lindóia, Brazil*
Propagação de um impulso elétrico em um axônio nervoso (poster)  *2012*

# Research Group and Networks

**Laboratory of Geometry and Dynamical Systems**                         *Barcelona*

Member                                                                    *2017 - Present*

- Group of researchers in Dynamical Systems and Symplectic geometry of Universitat Politècnica de Catalunya

**UPC Dynamical System Group**                                           *Barcelona*

Member                                                                    *2014 - Present*

- Group of researchers in Dynamical Systems of Universitat Politècnica de Catalunya

**DANCE**                                                                 *Spain*

Member                                                                    *2016-Present*

- Network of spanish reseachers in Dynamical Systems

# Participation in funded projects

**Sistemes dinàmics de la UPC - 2017SGR1049**                            *Barcelona*

Member                                                                    *2017 - Present*

- Funded by Catalan Science Department / Leading researcher: Tere Martinez-Seara

**Dinámica Asociada a Conexiones entre Objetos Invariantes con Aplicaciones a Neurociencia y Astrodinámica**                                                *Barcelona*

Member                                                                    *2016 - 2018*

- Funded by Ministerio de Economía y Competitividad (Spain) / Leading researcher: Tere Martinez-Seara

**Sistemes dinàmics de la UPC - 2014SGR504**                             *Barcelona*

Member                                                                    *2015-2016*

- Funded by Catalan Science Department / Leading researcher: Tere Martinez-Seara

**Dinámica Asociada a Conexiones entre Objetos Invariantes, Aplicaciones a Astrodinámica, Neurociencia y Otros Campos**                                     *Barcelona*

Member                                                                    *2014 - 2015*

- Funded by Ministerio de Economía y Competitividad (Spain) / Leading researcher: Amadeu Delshams

# Other Courses

**Introduction to Python**                                               *Barcelona*

Centre de Recerca Matamàtica                                             *2015*

**R Programming**                                                        *Coursera*

Johns Hopkins University                                                 *2016*

**Getting and Cleaning Data**                                           *Coursera*

Johns Hopkins University                                                 *2016*

# Languages

| | |
|---|---|
| **Portuguese** | Native Fluent |
| **English** | Intermediate |
| **Spanish** | Advanced |
| **Catalan** | Intermediate |

# Programming Languages

| | |
|---|---|
| **Python** | Intermediate |
| **LaTeX** | Intermediate |
| **R** | Basic |

## References

**Amadeu Delshams**
Universitat Politècnica de Catalunya                    *amadeu.delshams@upc.edu*

**Stefanella Boatto**
Universidade Federal do Rio de Janeiro                    *boattostefanella@gmail.com*

**Marcel Guardia**
Universitat Politècnica de Catalunya                    *marcel.guardia@upc.edu*

**Eva Miranda**
Universitat Politècnica de Catalunya                    *eva.miranda@upc.edu*

## Congresses and conferences attended

**16th Workshop on interactions between Dynamical Systems and PDE's**    *Bellaterra, Spain*
Centre de Recerca Matemàtica                    *2018*

**Perspectives in Hamiltonian Systems**    *Venice, Italy*
Università degli Studi di Padova                    *2018*

**Geometry, Dynamics, Integrable systems**    *Moscow, Russia*
Moscow Institute of Physics and Technology                    *2018*

**15th Winter School : Recents Trends in Nonlinear Sciences**    *Logroño, Spain*
Dance-net                    *2018*

**CSF Hamiltonian Systems**    *Ascona, Switzerland*
ETH Institute for Theoretical Studies                    *2017*

**IV Congreso de Jóvenes Investigadores-Real Sociedad Matemática Española**    *Valencia, Spain*
Real Sociedad Matemática Española                    *2017*

**Satellite Dynamics and Space Missions: Theory and Applications of Celestial Mechanics**    *San Martin al Cimino, Italy*
Società Italiana di Mecanica Celeste e Astrodinamica                    *2017*

**Finite Dimensional Integrable Systems in Geometry and Mathematical Physics**    *Bellaterra, Spain*
Centre de Recerca Matemàtica                    *2017*

**15th Workshop on interactions between Dynamical Systems and PDE's**    *Bellaterra, Spain*
Centre de Recerca Matemàtica                    *2017*

### Llavefest: A Broad Perspective on Finite and Infinite Dimensional DynamicalSystems

Centre de Recerca Matemàtica

*Barcelona, Spain*

*2017*

### Winter School in Conservative Dynamics

ETH Institute for Theoretical Studies

*Engelberg, Switzerland*

*2017*

### 13th Winter School : Recents Trends in Nonlinear Sciences

Dance-net

*Vigo, Spain*

*2017*

### DDays

Dance-net

*Salou, Spain*

*2016*

### 14th Workshop on interactions between Dynamical Systems and PDE's

Universitat Politècnica de Catalunya

*Barcelona, Spain*

*2016*

### II BGSMAth Junior Meeting

BGSMath

*Barcelona, Spain*

*2016*

### GestaJunior

Universitat Politècnica de Catalunya

*Barcelona, Spain*

*2016*

### 13th Winter School : Recents Trends in Nonlinear Sciences

Dance-net

*Seville, Spain*

*2016*

### Global Dynamics in Hamiltonian Systems

Universitat Politècnica de Catalunya

*Vall de Núria, Spain*

*2015*

### 13th Workshop on interactions between Dynamical Systems and PDE's

Universitat Politècnica de Catalunya

*Barcelona, Spain*

*2015*

### 12th Winter School : Recents Trends in Nonlinear Sciences

Universidad de Valladolid and Dance-net

*Valladolid, Spain*

*2015*

### Shilnikov Workshop.

Lobachevsky State University of Nizhni Novgorod

*Nizhny Novgorod, Russia*

*2014*

### Hamiltonian Dynamics, Non-Autonomous System and Patterns in PDE's.

Lobachevsky State University of Nizhni Novgorod

*Nizhny Novgorod, Russia*

*2014*

### 7th DDAYS

Dance-net

*Badajoz, Spain*

*2014*

**Barcelona Mathematical Days**

*Barcelona, Spain*

Societat Catalana de Matemàtiques

*2014*

**CNMAC- Congresso Nacional de Matemática Aplicada e Computacional**

*Águas de Lindóia, Brasil*

SBMAC

*2012*