

César A. Parra Rojas

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EDUCATION

Ph.D. Physics	2016
School of Physics and Astronomy, University of Manchester	
Supervisor: Prof. Alan J. McKane	
Thesis: <i>Intrinsic fluctuations in discrete and continuous time models</i>	
Supervisor: Prof. Alan J. McKane	
M.Sc. Physics	2013
FCFM, Universidad de Chile	
Thesis: <i>Efectos macroscópicos de las fluctuaciones en un baño bacteriano diluido (Macroscopic effects of fluctuations in a dilute bacterial bath)</i>	
Supervisor: Prof. Rodrigo Soto.	
B.Sc. Astronomy	2012
FCFM, Universidad de Chile	
B.Sc. Physics	2010
FCFM, Universidad de Chile	

AWARDS AND HONORS

Becas Chile PhD scholarship from CONICYT	2013–'16
Fulbright nominee	2012
Masters scholarship from CONICYT	2011–'12
1 st position in ranking of the School of Science and Engineering and 1 st position in ranking of Physics students at the end of B.Sc. program	2010
Outstanding Student Award by Universidad de Chile	2006–'09, '11
Universidad de Chile undergraduate scholarship	2006–'10

PUBLICATIONS

Submitted

1. **C. Parra-Rojas**, V. K. Nguyen, G. Hernández-Mejía, and E. A. Hernandez-Vargas, "Neuraminidase inhibitors—is it time to call it a day?" [[bioRxiv](#)]
2. V. K. Nguyen, **C. Parra-Rojas**, and E. A. Hernandez-Vargas, "The 2017 plague outbreak in Madagascar: data descriptions and epidemic modelling"
3. **C. Parra-Rojas**, V. von Messling, and E. A. Hernandez-Vargas, "Adjuvanted influenza vaccine dynamics"

4. **C. Parra-Rojas**, and A. J. McKane, “Reduction of a metapopulation genetic model to an effective one island model” [[arXiv](#)]

Peer-reviewed publications

1. **C. Parra-Rojas**, T. House, and A. J. McKane, “Stochastic epidemic dynamics on extremely heterogeneous networks”, *Phys. Rev. E* **94**(6), 062408 (2016) [[journal](#), [arXiv](#)]
2. **C. Parra-Rojas**, J. D. Challenger, D. Fanelli, and A. J. McKane, “Suppressing escape events in maps of the unit interval with demographic noise”, *Phys. Rev. E* **94**(5), 052133 (2016). [[journal](#), [arXiv](#)]
3. **C. Parra-Rojas**, J. D. Challenger, D. Fanelli, and A. J. McKane, “Intrinsic noise and two-dimensional maps: Quasicycles, quasiperiodicity, and chaos”, *Phys. Rev. E* **90**(3), 032135 (2014). [[journal](#), [arXiv](#)]
4. **C. Parra-Rojas**, and R. Soto, “Casimir effect in swimmer suspensions”, *Phys. Rev. E* **90**(1), 013024 (2014). [[journal](#), [arXiv](#)]
5. **C. Parra-Rojas**, and R. Soto, “Active temperature and velocity correlations produced by a swimmer suspension”, *Phys. Rev. E* **87**(5), 053022 (2013). [[journal](#), [arXiv](#)]
6. J. A. Kurzman, J. Li, T. D. Schladt, **C. R. Parra**, X. Ouyang, R. Davis, J. T. Miller, S. L. Scott, and R. Seshadri, “Pd²⁺/Pd⁰ redox cycling in hexagonal YMn_{0.5}Fe_{0.5}O₃: Implications for catalysis by PGM substituted complex oxides”, *Inorg. Chem.* **50**, 8073–8084 (2011). [[journal](#)]

Conference proceedings

1. M. A. Colman, **C. Parra-Rojas**, and E. A. Pérez Alday, “From Microscopic Calcium Sparks to the ECG: Model Reduction Approaches for Multi-Scale Cardiac Simulation”, *Computing in Cardiology (CinC)*, 325–328 (2015). [[journal](#)]

CONFERENCES AND SCHOOLS

<i>XIV Latin American Workshop on Nonlinear Phenomena</i> Cartagena, Colombia	September 2015
Talk: <i>Mesoscopic description of discrete-time stochastic processes</i>	
<i>V Summer School on Statistical Physics of Complex and Small Systems</i> Centre de Reserca Matemàtica, Barcelona, Spain	July 2015
<i>9th SICC International Tutorial Workshop</i> <i>Topics in Nonlinear Dynamics: Modelling and Analysis of Innovation and Competition Processes</i> DEIB, Politecnico di Milano, Milan, Italy	May 2014
<i>II Southern-Summer School on Mathematical Biology</i> ICTP-SAIFR, São Paulo, Brazil	January 2013
<i>Southern Workshop on Granular Materials</i> Puerto Varas, Chile	December 2012
Poster: <i>Velocity agitation energy due to an active suspension</i>	
<i>XVIII Simposio Chileno de Física</i> La Serena, Chile	November 2012
Talk: <i>Temperatura activa de una suspensión bacteriana (Active temperature of a bacterial suspension)</i>	

OTHER RESEARCH

Argonne National Laboratory & JFI, University of Chicago January–March 2012
Chicago-Chile Materials Collaboration Program.

Research: Study of noise effects on the nematic transition of bacterial suspensions.

Supervisor: Prof. Igor Aronson.

FCFM, Universidad de Chile January 2011
Cerro Calán Observatory.

Research: *Robotic telescope: optimisation of observation plan by means of Ant Colony Optimisation and genetic algorithms.*

Supervisor: Dr. Francisco Förster.

FCFM, Universidad de Chile March–July 2010

Debugging of a FORTRAN code for the computation of self-consistent fields in nuclear matter.

Supervisor: Prof. Hugo Arellano.

Materials Research Laboratory, University of California, Santa Barbara January–March 2010
CISEI program.

Research: $\text{Pd}^{2+}/\text{Pd}^0$ redox cycling in hexagonal $\text{YMn}_{0.5}\text{Fe}_{0.5}\text{O}_3$.

PI: Prof. Ram Seshadri

Supervisor: Dr. Joshua Kurzman.

PROGRAMMING SKILLS

Intermediate Python (including pandas, sklearn, numpy, scipy) and Wolfram Mathematica. I have also used FORTRAN, MATLAB and C⁺⁺. I am open to learn and use other tools.

TEACHING EXPERIENCE

I was a Teaching Assistant at FCFM, Universidad de Chile, from 2008 to 2011, for both Introduction to Newtonian Physics (1st year) and Introduction to Nuclear Physics (4th year). This involved preparing a range of problems and solving them with students, plus invigilating and grading tests.

OTHER ACTIVITIES

- The University of Manchester Chilean Society: chair 2015–2016; diversity officer 2014–2015.
 - Member of the University of Manchester Chorus from 2013 to 2014 and of the School of Science and Engineering Choir of Universidad de Chile from 2007 to 2009.
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