César A. Parra Rojas

Post-doctoral fellow
Sistems Medicine of Infectious Diseases
Frankfurt Institute for Advanced Studies (FIAS)
60438 Frankfurt am Main, Germany
Email: parra@fias.uni-frankfurt.de
Website: cparrarojas.github.io

EDUCATION

Machine Learning Engineer Nanodegree — 2018
Udacity Nanodegree Program
view certificate

Ph.D. Physics — 2016
School of Physics and Astronomy, University of Manchester
Supervisor: Prof. Alan J. McKane
Thesis: *Intrinsic fluctuations in discrete and continuous time models*
Supervisor: Prof. Alan J. McKane

M.Sc. Physics — 2013
FCFM, Universidad de Chile
Thesis: *Efectos macroscópicos de las fluctuaciones en un baño bacteriano diluido* (*Macroscopic effects of fluctuations in a dilute bacterial bath*)
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

1st position in ranking of the School of Science and Engineering and 1st position in ranking of Physics students at the end of B.Sc. program — 2010

Outstanding Student Award by Universidad de Chile — 2006–'09, '11

PUBLICATIONS

Submitted

1. A. E. S. Almocera, G. Hernández-Mejía, **C. Parra-Rojas**, and E. A. Hernandez-Vargas, "The trichotomy of pneumococcal infection outcomes". [**bioRxiv**]
2. **C. Parra-Rojas**, V. von Messling, and E. A. Hernandez-Vargas, "Adjuvanted influenza vaccine dynamics".

Journal articles

1. **C. Parra-Rojas**, V. K. Nguyen, G. Hernández-Mejía, and E. A. Hernandez-Vargas, "Neuraminidase Inhibitors in Influenza Treatment and Prevention–Is It Time to Call It a Day?", *Viruses* **10(9)**, 454 (2018). [**journal**]
2. V. K. Nguyen, **C. Parra-Rojas**, and E. A. Hernandez-Vargas, "The 2017 plague outbreak in Madagascar: data descriptions and epidemic modelling", *Epidemics* (in press). [**bioRxiv**]
3. **C. Parra-Rojas**, and A. J. McKane, "Reduction of a metapopulation genetic model to an effective one island model", *Europhys. Lett.* **122**, 18001 (2018). [**journal**, **arXiv**]
4. **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**]
5. **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**]
6. **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**]
7. **C. Parra-Rojas**, and R. Soto, "Casimir effect in swimmer suspensions", *Phys. Rev. E* **90(1)**, 013024 (2014). [**journal**,**arXiv**]
8. **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**]
9. J. A. Kurzman, J. Li, T. D. Schladt, **C. R. Parra**, X. Ouyang, R. Davis, J. T. Miller, S. L. Scott, and R. Seshadri, "Pd^{2+}/Pd^{0} redox cycling in hexagonal $YMn_{0.5}Fe_{0.5}O_3$: 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**]

PRESENTATIONS

Talks

28th Annual Meeting of the Society for Virology March 2018
Julius-Maximilians-Universität Würzburg, Würzburg, Germany
Title: *Role of adjuvants in immune response dynamics after influenza vaccination*

XIV Latin American Workshop on Nonlinear Phenomena September 2015
Cartagena, Colombia
Title: *Mesoscopic description of discrete-time stochastic processes*

XVIII Simposio Chileno de Física November 2012
La Serena, Chile
Title: *Temperatura activa de una suspensión bacteriana* (*Active temperature of a bacterial suspension*)

Posters

28th Annual Meeting of the Society for Virology March 2018
Julius-Maximilians-Universität Würzburg, Würzburg, Germany
Title: *Neuraminidase inhibitors—is it time to call it a day?*

Southern Workshop on Granular Materials December 2012
Puerto Varas, Chile
Title: *Velocity agitation energy due to an active suspension*

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.

Materials Research Laboratory, University of California, Santa Barbara January–March 2010
CISEI program.
Research: Pd^{2+}/Pd^{0} *redox cycling in hexagonal* $YMn_{0.5}Fe_{0.5}O_3$.
PI: Prof. Ram Seshadri
Supervisor: Dr. Joshua Kurzman.

SKILLS

Proficient: Python (numpy, pandas, scikit-learn, scipy, keras), Wolfram Mathematica, LaTeX.
Familiar with: Git, Bash, FORTRAN, MATLAB, C^{++}.

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.
