Adrián González Casanova

CONTACT INFORMATION	Instituto de Matemáticas, Universidad Nacional Autónoma de México (UNAM) Área de la Investigación Científica, Circuito exterior, Ciudad Universitaria, 04510, México, 11 adriangcs@matem.unam.mx http://page.math.tu-berlin.de/∼ agonzale/
PERSONAL INFORMATION	Born in Cuernavaca, Morelos, Mexico on the 26th of February 1986 Nationality: Mexican and Spanish.
RESEARCH INTERESTS	Probability Theory, Stochastic Processes, Population Genetics, Mathematical Modeling, Theoretical Biology, Experimental Evolution.
CURRENT POSITION	Investigador Asociado C (Assistant Professor, tenure track) at the **Institute of Mathematics (IMATE)** of the **National University of Mexico (UNAM)** [Since November 2017]

ACADEMIC PROCESS

Weierstrass-Institut fur Angewandte Analysis und Stochastik, Berlin, Germany.

- Postdoc in the group of Professor Dr. Wolfgang König. 2015-2017

TU Berlin (BMS), Berlin, Germany

Ph.D., Mathematics, *Start date:* 01-10-2012 *Defense date:* 9-10-2015
- Thesis Topic: *The effect of latency in population genetics*
- Advisors: Professor Dr. Jochen Blath and Professor Dr. Noemi Kurt
- Honors: summa cum laude

BMS Phase 1, Mathematics, From Oct 2010 to Jan 2012,
- Qualifying Exam in *Probability II, III and Algebraic Topology*
  Grade 1.3 (Sehr Gut)
- Overall grade 1.3 (Sehr Gut)

National University of Mexico (UNAM), Mexico City, Mexico.

B.Sc., Mathematics, From Ago 2005 to Dec 2009
- Thesis Topic: *Probability and Topology*
- Advisor: Professor Dr. Maria Emilia Caballero
- Grade 9.4 (out of 10)

Centro Universitario Anglomexicano (CUAM), Cuernavaca, Morelos, Mexico.

Highschool
- From Ago 2001 to Jul 2004
- Grade 8.5 (out of 10)

AWARDS

- Ito Prize 2017 for the paper *An individual based Model for the Lenski experiment, and the deceleration of the relative fitness.* (Together with N. Kurt, A. Wakolbinger and L. Yuan.)
- Member of the National System of Researchers (SNI, Mexico) Level 1.
- BMS substitut Professor 2018.

ACADEMIC VISITS **Research stays**

- Visiting: Prof. Dr. Anton Wakolbinger,
  Goethe University Frankfurt am Main (2013),
  Working on the project: Modeling the Lenski experiment
- Visiting: Prof. Dr. Julien Berestycki,
  University of Oxford (2015),
  Working on the projects: "Shape of adaptation in a simple $\mathcal{R}^2$ model" (With Dr. Charline Smadi and Atul Sehkhar) and "the duality between the Kingman n-Coalescent and the Lambda fleming viot process" (with Prof. Dr. Dario Spano).
- Visiting: Prof. Dr. Juan Carlos Pardo and Prof. Dr. Jose Luis Perez,
  CIMAT Guanajuato, Mexico (2016),
  Working on the projects: Branching Processes with interaction.
- Visiting: Prof. Dr. Maria Emilia Caballero,
  UNAM, Mexico City (2016),
  Working on the projects: α stable coalescent.
- Substitute professor at the Berlin Mathematical School,
  TU Berlin, Germany (2018).

Research short visits

- Visiting: Prof. Dr. Julien Berestycki (Now in Oxford)
  University of Paris VI, Pierre et Marie Curie,
  Working on the project: Mixing time approach to prove convergence to the Kingman coalescent
- Visiting: Prof. Dr. Dario Spanò,
  Warwick University,
  Working on the project: The ancestral process of the seed-bank model

International Schools

- Summer in IMPA (2010),
  IMPA, Rio de Janeiro, Brazil
- Summer school in Probability (2012)
  UBC Vancouver, Canada.
- Ecole de Printemps en Probabilités et Biologie évolutionnaire de l´ ANR MANEGE (2013)
  Aussois, France.
- School in Probability (2013)
  UNAM, Mexico DF , Mexico.
- Probabilistic Structures in Evolution summer school (2014)
  Heinrich-Fabri-Institute Blaubeuren, Germany.

REFEREED JOURNAL PUBLICATIONS

1. Duality and Fixation in Ξ-Wright-Fisher processes with frequency-dependent selection. **A. González Casanova** Dario Spano. (The Annals of Applied Probability 2018)

2. An individual based Model for the Lenski experiment, and the deceleration of the relative fitness. **A. González Casanova**, N. Kurt, A. Wakolbinger and L. Yuan. (Stochastic Process and Applications 2016)

3. Genetic variability under the seed-bank coalescent. J. Blath, B. Eldon, **A. González Casanova**, N. Kurt and M. Wilke-Berenguer. (Genetics 2015)

4. The seed-bank coalescent. J. Blath, **A. González Casanova**, N. Kurt and M. Wilke-Berenguer. (Annals of Applied Probability 2015)

5. Genealogy of a Wright-Fisher model with strong seed-bank component , J. Blath, B. Eldon, **A. González Casanova** and N. Kurt. (Birkhaeuser Progress in Probability 2014)

6. Strong seed-bank effects in bacterial evolution. **A. González Casanova**, E. Aguirre, G. Espín, L. Servin-González, N. Kurt, D. Spanò, J. Blath and G. Sóberon-Chavez. (J. Theor. Biol. 2014)

7. The ancestral process of long-range seed-bank models. J. Blath, **A. González Casanova**, N. Kurt and D. Spanò. (Journal of Applied Probability, 2013)

SUBMITTED
PAPERS

1. Branching processes with interactions: the subcritical cooperative regime. **A. González Casanova**, J. C. Pardo and J. L. Perez. arXiv:1704.04203.

2. Structural properties of the seed bank and the two-island diffusion. J. Blath, E. Buzzoni, **A. González Casanova**, and Maite Wilke Berenguer. arXiv:1710.08164

3. Modelling and simulating Lenski's long-term evolution experiment. Ellen Baake, **A. González Casanova**, Sebastian Probst, Anton Wakolbinger. arXiv:1803.09995

SCHOLARSHIPS
- DAAD-CONACyT Scholarship 2010-2012
- RTG 1845 Stochastic Processes and Applications to Biology, Physics and Finances Scholarship 2012-2015
- DAAD-CONACyT complementary Scholarship 2012-2015

MINI-COUSES
PRESENTED
- 2016 The seed bank model, VIII School on Probability and Stochastic Processes, CIMAT, Guanajuato, Mexico.
- *Modelos probabílisticos en genética de poblaciones.* CIMPA School, Universidad de San Carlos, Guatemala, Guatemala. 2018
- *The discrete ancestral selection graph.* Bath-UNAM-CIMAT. CIMAT, Guanajuato, Mexico. 2018
- *Probabilidad y genética de poblaciones* Escuela nacional de Probabilidad y Biologia CIMAT, Guanajuato, Mexico. 2018

SELECTED
PRESENTATIONS
- 2018 A Wright Fisher model with selection in random environment: duality, Stochastic Processes and their applications, Gothenburg, Sweden.
- 2017 Branching processes with interactions and population genetics, Branching processes and their applications, Beijing, China.
- 2017 Fixation in a Ξ coalescent model with selection, Seminar of Probability- University of Oxford, England.
- 2016 The seedbank coalescent, World Congress in Probability and Statistics, Fields Institut, Toronto, Canada.
- 2016 Fixation in a Ξ coalescent model with selection, Midlands Probability Theory Seminars - University of Warwick, England.
- 2016 Fixation in a Ξ coalescent model with selection, Probabilistic Models in Evolutionary Biology, University of Götingen, Germany
- 2016 Modeling the Lenski experiment, conference on Mathematical and Computational Evolutionary Biology, Montpellier, France.
- 2015 Defense of my PhD thesis. TU Berlin.
- 2015 An individual based model for the Lenski experiment, and the deceleration of the relative fitness. Probability and Biological Evolution, Frankfurt, colloquium in honor of Anton Wakolwinger.
- 2015 An individual based model for the Lenski experiment, and the deceleration of the relative fitness. Probability and Biological Evolution, CIRM, Marseille Luminy, France.
- 2014 The seed-bank coalescent, II Reunión de Matemáticos Mexicanos en el Mundo. Guanajuato, Mexico.

- 2014 The seed-bank coalescent, Duality of Markov processes and applications to spatial population models. Berlin, Germany.
- 2014 A weak mutation strong selection model for experimental evolution, RTG1845 colloquium, Berlin, Germany.
- 2014 A weak mutation strong selection model for experimental evolution, Genealogies of populations under competition, Essen, Germany.
- 2014 Stationarity, mixing times and convergence to the Kingman coalescent, 11th German Probability and Statistics Days, Ulm, Germany
- 2013 A weak mutation strong selection model for experimental evolution. XI Symposium of Probability and Stochastic Processes, Guanajuato, Mexico.
- 2013 A weak mutation strong selection model for experimental evolution. Mind the gap 4, 1st and 2nd of November, Vienna, Austria.
- 2013 Mixing-times and convergence to the Kingman coalescent. ETH-RTG1845 Summer School, 2nd to 6th September, Zurich, Switzerland.
- 2013 The seed-bank model.Ecole de Printemps en Probabilités et Biologie évolutionnaire de l´ANR MANEGE, Aussois, France.
- 2012 The seed-bank model. Seminar University of Alexandria, Egypt.
- 2012 DAAD Science Slam in Cairo, Egypt.
- 2012 The seed-bank model. Seminar RTG 1845, WIAS, Berlin, Germany.
- 2012 The seed-bank model. PIMS Summer School in Probability, Vancouver, Canada.
- 2012 What is the Brownian Motion?, Berlin Mathematical School, Berlin Germany
- 2011 The seed-bank model, CIMAT, Universidad de Guanajuato, Mexico.
- 2011 The seed-bank model , Instituto de Matemáticas, UNAM, Mexico.
- 2011 The seed-bank model, TU Berlin.
- 2009 Topics in weak convergence of stochastic processes, UNAM, Mexico.
- 2009 Defense of my Bachelor thesis, UNAM, Mexico.

Teaching Experience

- 2018 UNAM, Mexico City, Mexico.Stochastic Processes 1 (Bachelor level)
- 2018 TU Berlin, Berlin, Germany. The Seedbank model (Advanced Master level)
- 2018 UNAM, Mexico City, Mexico. Probability and Evolution (Advanced Master level)
- 2018 UNAM, Mexico City, Mexico. Probability 2 (Bachelor level)
- 2012 TU Berlin, Berlin Germany. Tutor of Probability 3 with Professor Dr. Noemi Kurt
- 2009 Caleya High School, Cuernavaca Mexico. Teacher of Probability and Calculus.
- 2008 Faculty of Science University of Mexico, Mexico City, Mexico Adjunct teacher in Stochastic processes 1 with Professor Geronimo Uribe.
- 2008 Faculty of Science University of Mexico, Mexico City, Mexico Adjunct teacher in Probability 2 with Professor Nelson Muriel Torrero.
- 2007 Faculty of Science University of Mexico, Mexico City, Mexico Adjunct teacher in Probability 1 with Professor Nelson Muriel Torrero.

Service

Student representative
- 2013-2014 RTG1845, Berlin, Germany.
- 2011-2012 Berlin Mathematical School, Berlin, Germany.

Postdoc representative
- 2017- Berlin Mathematical School, Berlin, Germany.

Organized Conferences
- 2018 Primer Taller Nacional de Probabilidad y Biologia, Cuernavaca, Mexico
- 2013 First meeting of Latin American students in Probability and Statistics in Europe.
- 2012 First BMS student conference