

**Ezequiel M. Arneodo, Ph. D.**  
Curriculum Vitae

**Personal Data:**

**Date of birth:** February 5th, 1982

**Nationality:** Argentine.

**Address:** 450 E 29th St, 9th Floor. New York University Neuroscience Institute, NY, NY 10016.

**Phone:** +1 646 625 9726

**Email:** ezequiel.arneodo@nyumc.org

**Studies:**

- Ph. D. In Physics, Universidad de Buenos Aires, Argentina. Thesis: Low-dimensional models for birdsong and application to bioprosthesis. (2012). Supervisor: Dr. Gabriel B. Mindlin.
- Licenciado en Física (Equivalent to M. Sc.), Universidad Nacional de La Plata, Buenos Aires, Argentina (2006). Thesis: Earthquakes as a critically self organized phenomenon. Supervisor: Dr. Carlos García Canal. Overall average: 9.33
- Bachelor, Chariton Highschool, Chariton, IA, USA. (1999) GPA 3.95.

**Areas of interest:** Systems neuroscience, sensorimotor integration, neuroprosthetics, biologically inspired robotics.

**Areas of experience:** Nonlinear dynamics, birdsong, bio-prosthetics, bio-robotics, olfaction, multi-electrode electrophysiology, optogenetics.

**Publications:**

ARTICLES IN JOURNALS WITH REFEREE:

- E. M. Arneodo, Y. Sanz Perl, F. Goller, G. B. Mindlin, *Prosthetic avian vocal organ controlled by a freely behaving bird based on a low dimensional model of the biomechanical periphery*. Plos Comp. Biol., Vol 8 Issue 06, 1002546 (2012).
- Y. Sanz Perl, E. M. Arneodo, A. Amador, F. Goller, G. B. Mindlin, *Reconstruction of physiological instructions from Zebra finch song*. Phys. Rev. E, 84 051909 (2011).
- Y. Sanz Perl, E. M. Arneodo, A. Amador, F. Goller, G. B. Mindlin. *Nonlinear Dynamics and the Synthesis of Zebra Finch Song*. International Journal of Bifurcation and Chaos, vol 22 issue 10, 1250235 (2012).
- E. M. Arneodo, Y. Sanz Perl, G. B. Mindlin, *Observables of sound source-tract coupling*. Phys. Rev. E, 83 041920 (2011). *Article selected in Virtual Journal of Biological Physics Research, April 1, 2010, Volume 29, Issue 9.*
- J. D. Sitt, E. M. Arneodo, F. Goller, G. B. Mindlin, *Physiologically driven avian vocal synthesizer*. Phys. Rev. E, 81 031927 (2010). *Article selected in Virtual Journal of Biological Physics Research, May 1, 2011, Volume 19, Issue 7.*
- E. M. Arneodo, G. B. Mindlin, *Source-tract coupling in birdsong production*. Phys. Rev. E, 79 061921 (2009). *Article selected in Virtual Journal of Biological Physics Research, July 1, 2009, Volume 18, Issue 1.*
- EM Arneodo, LM Alonso, JA Allende and GB Mindlin, *The dynamical origin of physiological instructions used in birdsong production*. PRAMANA, Indian Academy of Sciences Vol. 70, No. 6. June 2008.

MANUSCRIPTS IN PREPARATION:

- E. M. Arneodo, Kristina Penikis, Neil Rabinowitz, Thomas Bozza, Dmitry Rinberg, *Coherence of sister mitral/tufted cells spiking activity conveys odor information (2015)*.
- Brent K. Young, Ezequiel M. Arneodo, Gabriel B. Mindlin, Franz Goller, *Variability not stereotypy characterizes night-time motor replay of birdsong (2014)*.

**Positions:**

- Postdoctoral Position, Dmitry Rinberg Lab, NYU Langone Medical Center, Neuroscience Institute, NY, NY. (2013 – to date).
- Postdoctoral Position, Dynamical Systems Lab, Universidad de Buenos Aires. Advisor Gabriel Mindlin. (2012-2013).

- Teaching Assistant and Instructor, Universidad de Buenos Aires, Physics department. (2010-2013) Subjects: Physics I Lab for physics students, Biophysics, Electronics Lab, Statistical methods in physics, Electricity and Magnetism.
- Instructor, Universidad Nacional de La Plata, Physics department. (2008) Subjects: Physics I for chemistry students, Differential Equations for physics students.
- Lecturer, Universidad Nacional de La Plata, School of Engineering. (2008) Admission Course.
- Teaching assistant, Universidad Nacional de La Plata, Physics department. (2004-2008) Subjects: Physics I for chemistry students, Physics II for chemistry students, Physics I for physics students, Statistical Mechanics.
- Teaching assistant, Universidad Nacional de La Plata, School of Engineering. (2002-2004) Subject: Physics II.
- Computer Lab manager. Universidad Nacional de La Plata, School of Engineering. (11/2002-07/2004).

#### **Fellowships:**

- Pew Latin American Fellow in the Biomedical Sciences, granted by Pew Charitable trusts. 2014-2016.
- Fellowship for post-doc "Bunge y Born Foundation Award Postdoctoral Fellowship", granted by Bunge y Born Foundation. 2012-2014.
- Fellowship for post-doc, granted by CONICET (Consejo Nacional de Investigaciones Científicas y Técnicas) 2012-2014 (declined).
- Fellowship for graduate studies Type II, granted by CONICET (Consejo Nacional de Investigaciones Científicas y Técnicas) 2010-2012.
- Fellowship for graduate studies Type I, granted by CONICET (Consejo Nacional de Investigaciones Científicas y Técnicas) 2007-2010.

#### **Awards:**

- Hugo Arechiga Fellowship, a travel award to attend the Society for Neuroscience annual meeting (to attend SFN 2012 next October). Society for Neuroscience and Grass Foundation.
- Award "Dr. Joaquín V. González" to top 10 overall averages of the school of Natural Sciences at Universidad Nacional de La Plata.

#### **Direction of students:**

- Laboratorio 6 y Laboratorio 7 (Extended laboratory project of students of the M. Sc. Degree in physics at the physics department, UBA). *Physiological register processing for real-time synthesizer of avian vocal organ*. First and second term 2011. Tatiana Alonso Amor. Advisors: Gabriel Mindlin, Ezequiel Arneodo.
- Laboratorio 6 y Laboratorio 7 (Extended laboratory project of students of the M. Sc. Degree in physics at the physics department, UBA). *Chronic recordings in oscine birds*. Mario Galante. Advisors: Gabriel Mindlin, Ezequiel Arneodo.

#### **Assistance to schools and workshops (selected, last 5 years):**

- School: 2012 Ricardo Miledi Neuroscience Training Program. March 5-30 2012, Argentina. Organized by the U.S. Society For Neuroscience.
- Workshop: "Physics and Neuroscience: heading towards quantitative biology". Satellite workshop of the II Joint meeting Sociedad Argentina de Neurociencias / Taller Argentino de Neurociencias. 2010, Argentina.
- Workshop: II Joint meeting Sociedad Argentina de Neurociencias / Taller Argentino de Neurociencias. 2010, Argentina.
- Workshop: ICTP Latin-American Basic Course on FPGA Design for Scientific Instrumentation. 3/15/2010-3/31/2010, Mar del Plata, Argentina.
- School: 3<sup>rd</sup> Latin American School on Computational Neuroscience. 1/17/2010-2/10/2010, Riberão Preto, Brazil.

#### **Oral Contributions in meetings (selected):**

- Talk: "Making sense of latency in odor responses in the olfactory bulb". Sense to Synapse. April 2014, New York (NY), USA. Ezequiel M. Arneodo, Kristina Penikis, Thomas Bozza, Dmitry Rinberg.

- Talk: "Model-based prosthetic songbird's vocal organ". XVIII MEDYFINOL. December 2012, Santiago de Chile, Chile. Ezequiel M. Arneodo, Yonatan Sanz Perl, Franz Goller, Gabriel B. Mindlin.
- Talk: "Bio-prosthetic avian vocal organ based on a model of the biomechanics ". 12<sup>th</sup> Experimental Chaos and Complexity Conference. May 2012, Ann Arbor (MI), USA. Ezequiel M. Arneodo, Yonatan Sanz Perl, Franz Goller, Gabriel B. Mindlin.
- Invited Talk: "Observable effects of sound source-tract coupling". 18<sup>th</sup> International Conference on Sound and Vibration. July 2011, Rio de Janeiro, RJ, Brazil. Ezequiel M. Arneodo and Gabriel B. Mindlin.
- **Talk: "Physiologically driven electronic avian vocal organ". II Joint meeting Sociedad Argentina de Neurociencias / Taller Argentino de Neurociencias. 2010, Argentina. Section of talks of Young Investigators. Ezequiel Arneodo, Yonatan Sanz Perl, Gabriel Mindlin.**

#### **Poster contributions in meetings (selected):**

- Poster: "Processing olfactory information of a single receptor type". Neuroscience 2014, Washington DC, USA. Ezequiel M. Arneodo, Kristina Penikis, Thomas Bozza, Dmitry Rinberg.
- Poster: "Model-based bio-prosthesis: electronic avian vocal organ driven by a freely behaving bird". Neuroscience 2012, New Orleans (LA) USA. Ezequiel M. Arneodo, Yonatan Sanz Perl, Franz Goller, Gabriel B. Mindlin.
- Poster: "Low noise amplification of physiological recordings". 2011 meeting of the Sociedad Argentina de Neurociencias. 2011. Argentina. Tatiana Alonso Amor, Gabriel B. Mindlin, Ezequiel M. Arneodo.
- Poster: "An electronic syrinx to explore birdsong production mechanisms". Dynamics Days South America 2010. Sao Jose dos Campos, Brasil. Ezequiel M. Arneodo, Jacobo D. Sitt, Franz Goller, Gabriel B. Mindlin.
- Poster: "Exploring song production mechanisms with an electronic syrinx". Neuroscience 2009. USA. J. D. Sitt, E. M. Arneodo, F. Goller, and G. B. Mindlin.
- Poster: "Hebbian plasticity in subharmonic locking". XV Conference on Nonequilibrium Statistical Mechanics and Nonlinear Physics. 2008, Uruguay. Ezequiel M. Arneodo, Gabriel B. Mindlin.
- Poster: "Earthquakes as a SOC phenomenon: Characterization and Modelization". XV Conference on Nonequilibrium Statistical Mechanics and Nonlinear Physics. 2007, Argentina. Ezequiel M. Arneodo, Sergio Sciutto, Carlos García Canal, Huner Fancchiotti.

#### **Organization of workshops and meetings ():**

- Symposium: 2015 Sense to Synapse ([www.sense2synapse.com](http://www.sense2synapse.com)). April 2015, New York, NY. Organizers: Ezequiel M. Arneodo, Tobias Bartsch, Ana Calvo.

#### **Functions in public office:**

##### AT UNIVERSITY LEVEL:

- Graduate member of the Department academic council. Physics department, UBA. (2011-2012).
- Student member of the Academic Council. School of Sciences, UNLP. (2005-2007).

#### **Outreach:**

- Alphabetization and math teaching to elementary school-aged children. Villa Lugano, Buenos Aires, Argentina (2010-2012). Founder and coordinator of the group.
- Brain Awareness week, New York, NY. (2013 – 2015). Various activities as a volunteer.

#### **Foreign Languages:**

##### ENGLISH:

- First Certificate in English (Grade A)- University of Cambridge – 1998.
- Certificate of Proficiency in English (Grade B) - University of Cambridge - 1999.

##### GERMAN

- Deutsches Sprachdiplom, Erste Stufe - Ständige Konferenz der Kultursminister der Länder in der Bundesrepublik Deutschland – 1998.
- Deutsches Sprachdiplom, Zweite Stufe - Ständige Konferenz der Kultursminister der Länder in der Bundesrepublik Deutschland – 1999.

**Computer Skills:**

- Programming and computing tools (level of experience): C (advanced), Matlab (advanced), Python (intermediate), Mathematica (intermediate), Assembler (Basic), VHDL (Basic).
- Real-time data processing: DSP (enough to perform real-time altered feedback applications), FPGA (very basic), Arduino (my current ephys/optogenetic setup is built on an arduino and a pc layers).

**References:**

- Professor Gabriel B. Mindlin, Physics Department, Universidad de Buenos Aires. Argentina. gabo@df.uba.ar. (54-11) 4576-3390 Ext 803.
- Professor Franz Goller, Department of Biology, University of Utah. goller@biology.utah.edu. 801-585-1929
- Professor Mariano Sigman, Torcuato Di Tella University, Buenos Aires, Argentina. mariuchu@gmail.com
- Professor Michael Long, NYU Langone Medical Center Neuroscience Institute, NY, NY. mlong@nyumc.org. (212) 263-9145
- Postdoctoral researcher Jacobo D. Sitt, INSERM-CEA Cognitive Neuroimaging Unit, jdsitt@gmail.com.