

# Curriculum Vitae

## Personal Information

Full Name: Dr. Samyr Ariel Abdulack  
Date of Birth: 25th May, 1986  
Place of Birth: Ponta Grossa, PR — Brazil  
Nationality: Brazilian  
Languages: Portuguese (native), English (fluent), German (student), Italian (student), Latin (student)

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## Education

2014 - 2016 — Postdoctoral position in Dynamical Systems Theory and Chaos

We applied our discrete model of system in thermal bath for different systems. In special, to the ratchet map presenting chaos.

2010 - 2014 — Dr. In Theoretical Physics

Title: *Dynamical Systems in Structured Baths*

Advisor: Prof. Dr. Marcus W. Beims

One year sandwich at Technische Universität Dresden (Germany) under supervision of Prof. Dr. Walter T. Strunz group of *Theoretische Quantenoptik*

We proposed and studied a classical generalized Langevin-like map, from the Caldeira—Leggett continuous model. Many important results were presented in international and local conferences, and also in two papers in Phys. Rev. E., and still are giving us important results, for instance, a new form of fluctuation-dissipation relation for discrete-time systems and controlling ratchet transport and Johnson noise from system in bath model.

2008 - 2010 — MSc. In Physical Sciences

Title: *The Shadowing of Trajectories in the Standard Map*

Advisor: Prof. Dr. Sandro E. De Souza Pinto

As suggested by Prof. Dr. Celso Grebogi, our group studied the shadowing of trajectories in a conservative, non-hyperbolic map, such as standard map (Chirikov—Taylor). The results of my master thesis were presented in many conferences (local and international).

2004 - 2007 — Physics Degree

Title: *Software Modellus to Explore Some Aspects of Linear and Nonlinear Dynamics with Chaos*

Advisor: Prof. Dr. Fábio A. M. Cássaro

We investigate how to use mathematical modeling in many problems of physics, including nonlinear dynamics by using the software Modellus. The results were presented in many local conferences. We wrote a paper submitted to *The Physics Teacher*, but was considered high

level than the journal scope by the referees. The referees suggested to publish in a more specific journal, but we did not resubmitted anymore.

## Research Fellowships

Scientific Initiation	Fundação Araucária (Brazilian agency), 2006 – 2007
MSc.	CAPES (Brazilian agency), 2009 – 2010
PhD.	CAPES (Brazilian agency), 2010 – 2014
Visiting Student	CAPES (Brazilian Agency) + DAAD (Deutscher Akademischer Austauschdienst) throughout PROBRAL Program (Cooperation Program between Brazil and Germany) 2012 – 2013

## Teaching Activities

2018 – 2019	“Mathematics II” – Business (25 students) “Heat Transfer” – Mechanical Engineering and Chemical Engineering (70 students)
2017 – 2018	“Radiation Physics” – Dental Radiology and Imaging (20 students) “Calculus” – Polymer Technology (35 students) “Advanced Calculus” – Engineering (50 students) “Numerical Analysis” – Engineering (60 students) “Linear Algebra and Analytic Geometry” (50 students) “Mathematics I” – Business (25 students)
2016 – 2017	“Calculus” – Engineering (40 students)
2015 – 2016	“Physics: Mechanics” – Engineering (40 students) “Physics: Thermodynamics” – Engineering (25 students)
2008 – 2009	“Calculus” – Chemistry (40 students) and Informatics (40 students)

## Publications (Peer-Reviewed Journals)

1. Barea, C. S.; Beims, M. W.; **Abdulack, S. A.** *Theoretical Noise Control by a Thermal Bath Approach.* (In preparation).
2. Jousseph, C. A. C; **Abdulack, S. A.**; Manchein, C.; Beims, M. W. *Hierarchical collapse of regular islands via dissipation.* Journal of Physics A: Mathematical and Theoretical. Volume 51, p. 105101 -, 2018.
3. **Abdulack, S. A.**; Beims, M. W.; Lopes, S. R. *Controlling ratchet transport via a finite kicked environment.* Physical Review E, Statistical, Nonlinear, and Soft Matter Physics. Volume 94, p. 062210 -, 2016.
4. **Abdulack, S. A.**; Strunz, W. T.; Beims, M. W. *Finite kicked environments and the fluctuation-dissipation relation.* Physical Review E, Statistical, Nonlinear, and Soft Matter Physics. Volume 89, p. 042141 -, 2014.
5. **Abdulack, S. A.**; Szmowski, R. M.; Van Kan, M. T.; Vosgerau, R. A. *Do opposite attract? An Investigation from Dynamical Systems.* Revista Brasileira do Ensino de Física. Volume 33, p. 01 - 07, 2011.

## Main Conferences

1. **Abdulack, S. A.**; Beims, M. W.; Strunz, W. T. *Fluctuation-dissipation relation for kicked environments*, 2013. 542 Wilhelm und Else Heraeus Seminar: Classical and Quantum Transport in Complex Networks. Physikzentrum (Bad Honnef / Germany).
2. **Abdulack, S. A.**; Beims, M. W.; Strunz, W. T. *Fluctuation-dissipation relation for kicked environments*, 2013. ENFISUL – Encontro de Físicos do Sul. Universidade Federal do Paraná (Curitiba / Brazil).

3. **Abdulack, S. A.**; Beims, M. W. *Dynamics of Structured Baths*. Encontro de Física (SBF), 2011. (Foz do Iguaçu / Brazil).
4. **Abdulack, S. A.**; *Shadowing of trajectories in the standard map*. Dynamics Days South America, 2010. INPE: Instituto Nacional de Pesquisas Espaciais. (São José dos Campos / Brazil).
5. **Abdulack, S. A.**; Pinto, S. E. S. *Unstable Periodic Orbits and Chaos in Standard Map*. LAWNP: Latin American Workshop on Nonlinear Phenomena, 2009. UFPR (PR), PUC (RJ). (Armação dos Búzios / Brazil).

## Complementary Informations

As a temporary partial professor position (lecturer) in Brazil, I wrote a non-published small book for students, entitled: “*Apostila de Cálculo Numérico*”, which translates into Numerical Analysis for the Engineering students.

I organized one local short conference in Curitiba (PR) (*Encontro de Iniciação Científica. In: Semana Acadêmica Ânima / Unisociesc*) and a major conference in Ponta Grossa (PR) at UEPG (Universidade Estadual de Ponta Grossa — PR / Brazil) entitled: “XXV Semana de Física”.

As a temporary partial professor in Mathematics and Physics for Engineering (UNISOCIESC / UNICURITIBA — Curitiba / PR, Brazil), I worked as advisor for four students, as listed below according to the year from beginning to the end:

2018 — 2018 Jhoni Josep — *Modelling cracks by stochastic process*.

2018 — 2018 Nathan Szekut Barea — *General aspects of Mathematics modelling*.

2017 — 2020 Crystian Szekut Barea — *Johnson—Nyquist noise in electrical circuits*.

\* Now we are preparing the manuscript of the results obtained from this work.

2019 — 2020 Thainá Ferreira Dantas Silva — *X-Ray and CT-Scan Cone Beam in Odontology: A Review on Physical Aspects of Radiation and DNA Interaction*.

## Referee

- 1) Journal of Physics A: Mathematical and Theoretical — 2020
- 2) New Journal of Physics — 2020
- 3) Physica Scripta — 2019
- 4) Journal of Physics Communication — 2018
- 5) Journal of Engineering and Technology Research — 2011 - 2013