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# Bruno Gouvêa Taketani

## Professional Address:

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Theoretische Physik  
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## Research Interests

Open systems and decoherence theory.  
Foundations of quantum mechanics.  
Coherent control of quantum systems.  
Quantum entanglement.  
Quantum information and computation.

## Qualifications

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| 2011 | D. Sc. in Physics (Advisor: Prof. Ruynet Lima de Matos Filho).<br>Federal University of Rio de Janeiro, Rio de Janeiro, Brazil. |
| 2006 | M. Sc. in Physics (Advisor: Prof. Eduardo Souza Fraga).<br>Federal University of Rio de Janeiro, Rio de Janeiro, Brazil.        |
| 2004 | B. Sc. in Physics.<br>Federal University of Rio de Janeiro, Rio de Janeiro, Brazil.   |

## Current Position

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| Since Oct. 2011 | Postdoctoral researcher in the Theoretical Quantum Physics Group lead by Prof. Giovanna Morigi<br>Universität des Saarlandes.<br>Saarbrücken, Germany. |
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## Languages

Portuguese: Native.  
English: Advanced.  
Spanish: Intermediate.  
French: Basic.  
German: Basic.

## **Computation**

Experience in numerical programming in C and C++ and symbolic programming in Mathematica.

## **Research Activities**

- 2011-present    Postdoctoral Researcher (Supervisor: Giovanna Morigi).  
Focus: Coherent control of trapped ions.  
Universität des Saarlandes, Saarbrücken, Germany.
- 2007-2011      D. Sc. in Physics Student (Advisor: Ruynet Lima de Matos Filho).  
Focus: Quantum communication with open systems.  
Title: "*Noise effects in quantum communication protocols*".  
Federal University of Rio de Janeiro, Rio de Janeiro, Brazil.
- 2009            Guest Scientist.  
Focus: Quantum teleportation with noisy input.  
Katholieke Universiteit Leuven, Leuven, Belgium.
- 2009            Doctorate Internship Program (Advisor: Prof. Andreas Buchleitner).  
Focus: Quantum teleportation with noise.  
Title: "*Robustness of Teleportation Protocols Under Noise in the Quantum Channel*".  
Albert-Ludwigs-Universität Freiburg, Freiburg, Germany.
- 2004-2006      M. Sc. in Physics (Advisor: Prof. Eduardo Souza Fraga).  
Focus: QCD phase transitions.  
Title: "*Inhomogeneities effect in the chiral transition*".  
Federal University of Rio de Janeiro, Rio de Janeiro, Brazil.

## **Professional Activities**

Referee for Journal of Applied Physics.

## **Scientific Publications**

- B.G.T., Fernando de Melo, Ruynet L. de Matos Filho  
*Optimal teleportation with a noisy source.*  
[Physical Review A 85, 020301\(R\) \(2012\).](#)  
[arXiv:1102.1737.](#)
- Stephen Walborn, B.G.T., Alejo Salles, Fabrício Toscano and Ruynet L. de Matos Filho  
*Entropic Entanglement Criteria for Continuous Variables.*  
[Physical Review Letters 103, 160505 \(2009\).](#)  
[arXiv:0909.0147](#)
- B.G.T. and Eduardo Souza Fraga  
*Nucleation in the chiral transition with a inhomogeneous background.*  
[Brazilian Journal of Physics 37, 613 \(2007\).](#)
- B.G.T. and Eduardo Souza Fraga  
*Effects from inhomogeneities in the chiral transition.*  
[Physical Review D 74, 085013 \(2006\).](#)

- B.G.T. and Eduardo Souza Fraga  
*Effects from inhomogeneities in a chiral field coupled to quarks.*  
Proceedings of the XVII Meeting on Hadronic Interactions (2005).
- B.G.T. and Eduardo Souza Fraga  
*Inhomogeneity corrections to bubble nucleation dynamics.*  
Proceedings of the XVI Meeting on Hadronic Interactions (2004).

### **Invited Talks**

- dec/2009                      Katholieke Universiteit Leuven, Leuven, Belgium.  
"Entropic Entanglement Criteria for Continuous Variables".
- nov/2010                      Universidad Nacional Autónoma de México, Mexico City, Mexico.  
"Optimal Teleportation From a Noisy Source".

### **Teaching**

- 2007, semester 2            Professor of Experimental Physics II.  
Federal University of Rio de Janeiro, Brazil.
- 2007, semester 1            Teaching Assistant - Physics III.  
Distance learning center - Undergraduate - CEDERJ/UFRJ
- 2005, semester 1            Teaching Assistant - Physics III.  
Federal University of Rio de Janeiro, Brazil.
- 2001, semester 1            Substitute Professor - Physics.  
University Preparation Course - InVest.

### **Conferences/Courses attended**

- aug/2011                      Paraty11: Quantum Information School and Workshop.  
Poster: "Optimal Teleportation From a Noisy Source".  
Paraty, Brazil.
- jul/2011                      XXII International Conference on Squeezed States and Uncertainty Relations.  
Poster: "Optimal Teleportation From a Noisy Source".  
Prague, Czech Republic.
- may/2011                      XXII International Conference on Squeezed States and Uncertainty Relations.  
Poster: "Optimal Teleportation From a Noisy Source".  
Foz do Iguaçu, Brazil.
- nov/2010                      Quantum Optics V.  
Poster: "Optimal Teleportation From a Noisy Source".  
Cozumel, Mexico.

- nov / 2010 Rio - Mexico Meeting on Quantum Optics and Information.  
Talk: "*Optimal Teleportation From a Noisy Source*".  
Universidad Nacional Autónoma de México, Mexico City, Mexico.
- sep / 2009 Paraty09: Quantum Information School and Workshop.  
Poster: "*Robustness of an optimal d-dimensional teleportation protocol*".  
Paraty, Brazil.
- mar / 2009 73. Annual Meeting of the DPG and DPG Spring Meeting of the Section AMOP.  
Talk: "*Robustness of an optimal d-dimensional teleportation protocol*".  
University of Hamburg, Hamburg, Germany.
- feb / 2008 XI Jorge André Swieca Summer School on Quantum Optics and Non-Linear Optics  
São Paulo University, São Paulo, Brazil.
- aug / 2007 Paraty07: Quantum Information School and Workshop.  
Paraty, Brazil.
- dec / 2005 I Latin Workshop on High Energy Phenomenology.  
Poster: "*Inhomogeneity corrections to the nucleation process*".  
Federal University of Rio Grande do Sul, Porto Alegre, Brazil.  
**Honors mention for work presented.**
- out / 2005 XXVI National Meeting on Particle and Field Physics.  
Poster: "*Inhomogeneity corrections to the nucleation process*".  
São Lourenço, Brazil.
- aug / 2005 XI International Conference on Hadron Spectroscopy.  
Poster: "*Inhomogeneity corrections to bubble nucleation in the chiral transition*".  
Brazilian Center for Physics Research, Rio de Janeiro, Brazil
- may / 2005 XVII Meeting on Hadronic Interactions  
Talk: "*Inhomogeneity corrections to bubble nucleation dynamics*".  
Mackenzie University – São Paulo, Brazil.
- out / 2004 XVI Meeting on Hadronic Interactions  
Talk: "*Effects from inhomogeneities in a chiral field coupled to quarks*".  
Brazilian Center for Physics Research, Rio de Janeiro, Brazil
- aug / 2004 XXV National Meeting on Particle and Field Physics.  
Poster: "*Chiral fields coupled to quarks at finite temperature: the role of inhomogeneities in the background field*".  
Caxambu, Brazil.
- apr / 2004 IX Hadron Physics and VII Relativistic Aspects of Nuclear Physics.  
"*A joint meeting on QCD and QGP*".  
Angra dos Reis, Brazil.