

JOSÉ ACACIO DE BARROS

San Francisco State University
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San Francisco, CA 94132

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ACADEMIC POSITIONS

San Francisco State University, Associate Professor Liberal Studies Department	2013- <i>Present</i>
San Francisco State University, Assistant Professor Liberal Studies Department	2007-2013
Stanford University, Visiting Associate Professor Center for the Study of Language and Information (CSLI)	2005-2007
Stanford University, Visiting Associate Professor Center for the Study of Language and Information (CSLI)	1998-2000
Federal University at Juiz de Fora, Associate Professor (tenured) Physics Department	1997-2011
Brazilian Center for Research in Physics, Visiting Researcher Laboratory for Experimental High Energy Physics (Lafex)	1996-1995
Federal University of Brazil at Juiz de Fora, Associate Professor Physics Department	1995-1997
Stanford University, Physical Sciences Associate Researcher Institute for Mathematical Studies in the Social Sciences (IMSSS)	1993-1994
Stanford University, Visiting Postdoctoral Scholar Institute for Mathematical Studies in the Social Sciences (IMSSS)	1991-1993

EDUCATION

Ph.D., Physics Brazilian Center for Research in Physics (CBPF), Brazil	1991
M.S., Physics Brazilian Center for Research in Physics (CBPF), Brazil	1989
B.S., Physics Federal University at Rio de Janeiro (UFRJ), Brazil	1988

TEACHING EXPERIENCE

- San Francisco State University** 2007-Present
Liberal Studies Program
Taught/developed the following courses.
- *Concepts of the Number System*
 - *Concepts of Physics and Chemistry (GE)*
 - *Physical Sciences for Elementary School Teachers*
 - *Perspectives on Liberal Studies (interdisciplinary research theory)*
 - *Liberal Studies Senior Seminars (interdisciplinary research methods)*
- Federal University at Juiz de Fora, Brazil** 1995-2011
Physics Department, Institute for Exact Sciences
Taught/developed the following courses.
- *Introductory Mechanics (calculus-based)*
 - *Introductory Electricity and Magnetism (calculus-based)*
 - *Special Relativity*
 - *Analytical Mechanics*
 - *Classical Mechanics*
 - *Foundations of Quantum Mechanics*
 - *General Relativity and Cosmology*
 - *Impact of Research on Physics Education*
 - *Physics of the Brain*
 - *Quantum Mechanics*
 - *Statistical Mechanics*
 - *Advanced Classical Mechanics (graduate level)*
 - *Advanced Quantum Mechanics (graduate level)*
 - *Quantum Optics (graduate level)*
- Stanford University** 1993-2011
Taught/co-taught/developed the following courses.
- *Mechanics (calculus based)*
 - *Electricity & Magnetism (calculus based)*
 - *Philosophy of Physics: Probability and Relativity (graduate level)*
- Brazilian Center for Research in Physics (CBPF)** 1990
Assisted/lectured as a Teaching Assistant the following graduate-level course.
- *Analytical Mechanics*

REFEREED PUBLICATIONS¹

- de Barros, J. Acacio**, Oas, G., & Suppes, P. (2015). Negative probabilities and Counterfactual Reasoning on the double-slit Experiment. To appear in *Conceptual Clarification: Tributes to Patrick Suppes (1922-2014)*, J.-Y-Beziau, D. Krause and J.B. Arenhart (eds), College Publications, London.
- Carvalhoes, C. G.** & de Barros, J. Acacio (2015). The Surface Laplacian Technique in EEG: Theory and Methods. To appear in the special issue *SI: Surface Laplacian Methods of the International Journal of Psychophysiology*, arXiv:1406.0458.
- de Barros, J. Acacio**, & Oas, G. (2014). Negative probabilities and counter-factual reasoning in quantum cognition. *Physica Scripta*, T163, 014008.
- Oas, G.**, de Barros, J. Acacio, & Carvalhoes, C.G. (2014). Exploring non-signalling polytopes with negative probability. *Physica Scripta*, T163, 014034.
- de Barros, J. Acacio** & Oas, G. (2014) Response Selection Using Neural Phase Oscillators. To appear in the *Foundations and Methods from Mathematics to Neuroscience: Essays Inspired by Patrick Suppes*, Colleen Crangle, Adolfo Garcia de la Sierra, and Helen Longino (eds), CSLI Publications, Stanford University, Stanford, CA.
- de Barros, J. Acacio**. (2014) Decision Making for Inconsistent Expert Judgments Using Signed Probabilities. In H. Atmanspacher, E. Haven, K. Kitto, & D. Raine (Eds.), *Quantum Interaction, Lecture Notes on Computer Science*, 257–269.
- Carvalhoes, C.G.**, **de Barros, J. Acacio**, Perrau-Guimarães, M., & Suppes, P. (2014). The joint use of the tangential electric field and surface Laplacian in EEG classification. In press, *Brain Topography*, 27(1), 84-94.
- de Barros, J. Acacio** (2012). Quantum-like model of behavioral response computation using neural oscillators. *BioSystems*, 110, 171–182.
- Suppes, P.**, **de Barros, J. Acacio**, & Oas, G. (2012). Phase-Oscillator Computations as Neural Models of Stimulus-Response Conditioning and Response Selection. *Journal of Mathematical Psychology*, 56, 95–117.
- de Barros, J. Acacio** (2011). Comments on ‘There is no Axiomatic system for the quantum theory.’ *International Journal of Theoretical Physics*, 50, 1828–1830.
- Vassilieva, E.**, **Pinto, G.**, de Barros, J. Acacio, & Suppes, P. (2011). Learning Pattern Recognition through Quasi-synchronization of Phase Oscillators. *IEEE Transactions of Neural Networks*, 22, 84-95.

¹ Boldface indicates main contributing author(s), and asterisks mark undergraduate students.

- Augsburg, T., & de Barros, J. Acacio** (2010). Integrating different modes of inquiry for pre-service teachers. In Chary Rangacharyulu & Emmanuel Haven (Eds.), *Proceedings of the First Interdisciplinary CHESS Interactions Conference*. Singapore: World Scientific. (editor reviewed)
- de Barros, J. Acacio, & Suppes, P.** (2010). Probabilistic Inequalities and Upper Probabilities in Quantum Mechanical Entanglement. *Manuscripto*, 33, 55-71.
- de Barros, J. Acacio, & Suppes, P.** (2009). Quantum mechanics, interference, and the brain. *Journal of Mathematical Psychology*, 53, 306-313.
- Suppes, P., & de Barros, J. Acacio** (2007). Quantum Mechanics and the Brain. In *Quantum interaction: papers from the AAAI spring symposium. Technical report ss-07-08*, 75–82. Menlo Park, CA: AAAI Press.
- de Barros, J. Acacio, Corrêa Silva, E. V., Monerat, G. A., Oliveira-Neto, G., Ferreira Filho, L. G., & Romildo*, Jr., P.** (2007). Tunneling probability for the birth of an asymptotically de Sitter universe. *Physical Review D*, 75, 104004.
- de Barros, J. Acacio, de Mendonça, J. P. R. F., & Pinto-Neto, N.** (2007). Realism in Energy Transition Processes: an example from Bohmian Quantum Mechanics. *Synthese*, 154, 349–370.
- de Barros, J. Acacio, Carvalhaes, C. G., de Mendonça, J. P. R. F., & Suppes, P.** (2006). Recognition of Words from the EEG Laplacian, *Brazilian Journal of Biomedical Engineering*, 21, 45-59.
- de Barros, J. Acacio, Oliveira Neto, G., & Vale, T. B.** (2005). Bohmian Trajectories for Evaporating Black-Holes. *Physics Letters A*, 336, 324-330.
- de Barros, J. Acacio** (2005). Utilizando métodos de Engajamento Interativo em um Curso de Mecânica Clássica (in Portuguese: Using Interactive Engagement Methods in a Advanced Classical Mechanics Course). *Anais do XVI Simpósio Nacional de Ensino de Física, Niterói, RJ.* (editor reviewed)
- Carvalhaes, C. G., de Barros, J. Acacio, & Suppes, P.** (2004). O Laplaciano na Análise de Ondas Cerebrais (in Portuguese; The Laplacian as a Tool for the Analysis of Brainwaves). *Anais do 60 Simpósio Brasileiro de Análise*, 2, 243-250.
- de Barros, J. Acacio, Remold, J., Vidal*, F. V., & Barbosa*, N. A.** (2004). Desempenho Conceitual de Alunos do Método de Engajamento Interativo do Curso de Física I da UFJF (in Portuguese: Conceptual Development of Students in an Active Engagement Introductory Physics Course at UFJF). *Anais do IX Encontro de Pesquisa em Ensino de Física, Jaboticatubas, MG, Brazil.*

- de Barros, J. Acacio, Remold, J., da Silva*, G.S.F., & Tagliati, J.R.** (2004). Engajamento interativo no curso de Física I da UFJF (in Portuguese; Interactive Engagement in UFJF's Introductory Physics course), *Revista Brasileira de Ensino de Física*, 26, 63–69.
- de Barros, J. Acacio, Remold, J., Tagliati, J. R., da Silva, G. S. F., & Matheus-Valle, J. L.** (2003). A Aplicação de uma Nova Metodologia de Ensino de Física Usando Aprendizado Colaborativo (in Portuguese; Applying a New Physics-teaching Methodology Using Collaborative Learning). *Coletânea da VI Escola de Verão para Professores de Prática de Ensino de Biologia, Física e Química e Áreas Afins*. Niterói, RJ, Brazil: Editora da UFF.
- de Barros, J. Acacio, & Suppes, P.** (2001). Probabilistic Results for Six Detectors in a Three-Particle GHZ Experiment. In Bricmont, J., Ghirardi, G, Dürr, D., Petruccione, F, Galavotti, M.C., and Zanghi (Eds.), *Chance in Physics: Foundations and Perspectives: Lecture Notes in Physics Vol. 574*, 213-223. Berlin: Springer Verlag.
- de Barros, J. Acacio, & Suppes, P.** (2000). Dealing with detector inefficiencies in Greenberger-Horne-Zeilinger-type experiments. *Physical Review Letters* 84, 793–797.
- de Barros, J. Acacio, Sagiuro Leal, M.A., & Pinto Neto, N.** (2000). The Causal Interpretation of the Conformally Coupled Scalar Field Quantum Cosmology. *General Relativity and Gravitation*, 32, 15–39.
- de Barros, J. Acacio, **Shapiro, I.L., & Pinto-Neto, N.** (1999). Quantum gravity correction, evolution of scalar field and inflation. *Classical and Quantum Gravity* 16, 1773–1782.
- de Barros, J. Acacio, Pinto-Neto, N., & Sagiuro-Leal, M.A.** (1998). The Causal Interpretation of Dust and Radiation Fluids Non-Singular Quantum Cosmologies. *Physics Letters A*, 241, 229–239.
- de Barros, J. Acacio, & Pinto-Neto, N.** (1998). The Causal Interpretation of Quantum Mechanics and the Singularity Problem and Time Issue in Quantum Cosmology. *International Journal of Modern Physics D*, 7, 201–214.
- de Barros, J. Acacio, & **Shapiro, I.L.** (1997). Renormalization Group Study of the Higher Derivative Conformal Scalar Model. *Physics Letters B*, 412, 242–252.
- de Barros, J. Acacio, & Pinto Neto, N.** (1997). Comments on the Quantum Potential Approach to a Class of Quantum Cosmological Models. *Classical and Quantum Gravity*, 14, 1993–1995.

- de Barros, J. Acacio, & Pinto-Neto, N.** (1997). The Causal Interpretation of Quantum Mechanics and the Singularity Problem in Quantum Cosmology. *Nuclear Physics B*, 57, 247–250.
- Suppes, P., & de Barros, J. Acacio** (1996). Photons, Billiards and Chaos. In P. Weingartner & G. Schurz (Eds.), *Law and Prediction in the Light of Chaos Research: Lecture Notes in Physics Vol. 473*, 189–201. Berlin: Springer Verlag.
- Suppes, P., de Barros, J. Acacio, & Oas, G.** (1996). A Collection of Probabilistic Hidden-Variable Theorems and Counterexamples. In R. Pratesi & L. Ronchi (Eds.), *Waves, Information and Foundation of Physics: a tribute to Giuliano Toraldo di Francia on his 80th birthday*. Florence: Italian Physical Society.
- Suppes, P., de Barros, J. Acacio, & Sant'Anna, A.S.** (1996). Violation of Bell's Inequalities with Local Photons. *Foundations of Physics Letters*, 9, 551–560.
- Suppes, P., Sant'Anna, A.S., de Barros, J. Acacio** (1996). A Pure Particle Theory of the Casimir Effect. *Foundations of Physics Letter*, 9, 213–223.
- Ravaglia, R., de Barros, J. Acacio, & Suppes, P.** (1995). Computer-Based Advanced Placement for Physics for Gifted Students. *Computers in Physics*, 9, 380–386.
- Suppes, P. & de Barros, J. Acacio** (1994). Diffraction with Well-Defined Photon Trajectories: a Foundational Analysis. *Foundations of Physics Letters*, 7, 501–514.
- da Costa, N.C.A., Doria, F.A., Furtado do Amaral, A. F., & J. Acacio de Barros.** (1994). Two Questions on the Geometry of Gauge Fields. *Foundations of Physics*, 24, 783–800.
- Suppes, P., & de Barros, J. Acacio** (1994). A Random-Walk Approach to Interference. *International Journal of Theoretical Physics*, 33, 179–189.
- da Costa, N.C.A., Doria, F.A., & de Barros, J. Acacio** (1990). A Suppes Predicate for General Relativity and Set-Theoretically Generic Spacetimes, *International Journal of Theoretical Physics*, 29, 935–961.
- Doria, F.A., de Barros, J. Acacio, & Ribeiro da Silva, M.** (1987). Noncomputable Functions, Generic Functions and Random Sequences. *Boletim da Sociedade Paranaense de Matemática*, 8, 197–216.

OTHER PUBLICATIONS

- de Barros, J. Acacio** (2015). Beyond the Quantum Formalism: Consequences of a Neural-Oscillator Model to Quantum Cognition. In *Advances in Cognitive Neurodynamics (IV)*, H. Liljenström (ed.), pp. 401–404. Netherlands: Springer.
- de Barros, J. Acacio** (2014). On a Model of Quantum Mechanics and the Mind. To appear in *Foundations of Mind*, Sean O’Nuallain (ed.), Cambridge Scholars Publishing.
- de Barros, J. Acacio** (2012). Joint Probabilities and Quantum-Cognition. AIP Conference Proceedings, 1508, 98-109.
- de Barros, J. Acacio**, Oliveira Neto, G., & Vale, T.B. (2004). The de Broglie-Bohm Interpretation of Evaporating Black-Holes. Unpublished manuscript. arXiv:gr-qc/0404073.
- de Barros, J. Acacio** (1997). Causalidade e Probabilidade (in Portuguese: Causality and Probability). In *Pós-Modernismo: Anticiência e Antihumanismo?*, H. Abdalla-Neto (Ed.), Symposium conducted at the Universidade Católica de Petrópolis, Petrópolis, RJ, Brazil.
- Suppes, P., de Barros, J. A., & Sant’Anna, A. S.** (1996). A Proposed Experiment Showing that Classical Fields Can Violate Bell’s Inequalities. arXiv:quant-ph/9606019.
- Suppes, P., & **de Barros, J. Acacio** (1995, December 17) A Descoberta dos Raios-X (in Portuguese: The Discovery of the X-Rays). *Jornal Tribuna de Minas: Caderno Leitura*, Juiz de Fora, MG, Brazil.
- de Barros, J. Acacio** (1991). *Dois Exemplos de Indecibilidade e Incompletude em Física (Two Examples of Undecidability and Incompleteness in Physics)*. Doctoral dissertation, Brazilian Center for Research in Physics, Rio de Janeiro, Brazil. Dissertation committee: F. A. Doria (chair), N. C. A. da Costa, J. J. Giambiagi, A. F. F. Teixeira, D. Krause, W. C. S. da Silva, J. Helayel-Neto, F. Caruso.
- Doria, F. A.,** Furtado do Amaral, A. F., & de Barros, J. Acacio (1990). Noncurvature Solutions for the Bianchi Differential Conditions. CETMAC-5/IDEA, School of Communications, UFRJ, Rio de Janeiro.
- da Costa, N. C. A., Doria, F. A., & de Barros, J. Acacio** (1989). On a Formally Undecidable Statement in Classical Electromagnetic Theory. In C. A. Bertulani and J. Lopes Neto (Eds.), *Encontro de Física Teórica do Rio de Janeiro: Homenagem Póstuma ao Prof. Carlos Márcio do Amaral*. Rio de Janeiro: Editora da UFRJ.

OTHER PUBLICATIONS, CONTINUED

de Barros, J. Acacio (1988). *Conjuntos Genéricos Segundo Cohen e suas Aplicações à Física (Generic Sets According to Cohen and its Applications to Physics)*. Master's Thesis, Brazilian Center for Research in Physics, Rio de Janeiro, Brazil. Committee: F. A. Doria, N. C. A. da Costa, M. Dutra Fragoso, A. F. F. Teixeira.

Doria, F.A., & de Barros, J. Acacio (1988). Chaos, Entropy, Set-Theoretic Models and Higher Cardinals. In *Atas do Simpósio UNICAMP "Ordem e Desordem."* Unicamp: Editora da Unicamp.

Doria, F. A., & de Barros, J. Acacio (1988). On a Set-Theoretic Property Equivalent to the Negation of the Continuum Hypothesis. CETMAC/IDEA, School of Communications, UFRJ, Rio de Janeiro.

INVITED PRESENTATIONS

Foundations of Quantum Mechanics. Invited lectures at the *Fundamental Physics School*, organized with the support of FAPESP. State University of São Paulo in São José dos Campos, November 18th-21st, 2014.

Some Examples of Contextuality in Physics. Invited lecture at *Purdue Winer Memorial Lectures*, Purdue University, West Lafayette, IN, November 1st to 3rd.

Decision Making for Inconsistent Expert Judgments Using Signed Probabilities. Invited talk at the Mathematical and Computational Cognitive Science (MCCS) area colloquium of the Department of Psychological Sciences, Purdue University, West Lafayette, IN, February 24th, 2014.

Signed probabilities as an alternative to rational decision making: an argument from evolutionary biology. Keynote presentation at the conference "Convergenze Parallele" organized with the support of the Apulian Regional Initiative "Laboratori dal Basso", University of Salento, Italy, September 10th-12th, 2013.

Beyond quantum cognition: consequences of a neural-oscillator model of quantum-like behavioral response. Invited presentation at the special section on Quantum Ontology: A New Direction in Modeling the Cognitive Domain at *The 4th International Conference on Cognitive Neurodynamics*, Agora for Biosystems, Sigtuna, Sweden, June 23rd-27th, 2013.

Quantum Cognition. Invited tutorial (four lectures) at the *4th World Congress and School on Universal Logic*, Rio de Janeiro, Brazil, March 29th-April 2nd, 2013.

Response Selection Using Neural Phase Oscillators. Invited presentation at *A Symposium on the Occasion of Patrick Suppes's 90th Birthday*, Stanford University, Stanford, California, August 2012.

INVITED PRESENTATIONS, CONTINUED

Joint Probabilities and Quantum Cognition. Invited presentation at *Quantum Theory: Reconsiderations of Foundations – 6*, Linneaus University, Växjö, Sweden, June 2012.

Realism in Energy Transition Processes: an example from Bohmian Mechanics. Invited presentation given at *New Trends in the Foundations of Science*. Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil, April 2002.

Causalidade e Probabilidade (Causality and Probability). Invited presentation at the conference *Pós-Modernismo: Anticiência e Antihumanismo?* (Post-modernism: anti-science and anti-humanism?) Universidade Católica de Petrópolis (UCP), Petrópolis, RJ, Brazil, 1997.

A New Kind of Dirac Equation. Invited presentation given at the *10th Annual ANPA West Meeting*. Stanford University, Stanford, California, February 1992.

CONFERENCE PRESENTATIONS

Exploring non-signalling polytopes with negative probability. Paper presented at the *Quantum Theory: from problems to advances*, Linneaus University, Växjö, Sweden, June 2014.

Unifying two methods of measuring quantum contextuality. Paper presented at the *Quantum Theory: from problems to advances*, Linneaus University, Växjö, Sweden, June 2014.

Decision Making for Inconsistent Expert Judgments Using Negative Probabilities. Paper presented at the *Seventh International Quantum Interactions Conference (QI2013)*, University of Leicester, Leicester, England, July 2013.

Negative probabilities and counterfactual reasoning. Paper presented at the *Quantum Information & Quantum Foundations Workshop*, Linneaus University, Växjö, Sweden, June 2013.

Can negative probabilities be useful? Poster presented at the *AAPT Winter Conference*, Ontario, California, February 2012.

A Convenient Text: Utilizing An Inconvenient Truth in an Interdisciplinary Gateway Course at San Francisco State University. Panel session (with T. Augsburg, T. Chitewere, M. Luskey, and L. Hennessy) presented at the *Association for Integrative Studies (AIS) 30th annual conference*, Springfield, IL, October 2008.

Inquiry in Cultural Context: Interactive Engagement among Brazilian Students. Poster presented at the *AAPT Summer Conference*, Edmonton, Canada, July 2008.

CONFERENCE PRESENTATIONS, CONTINUED

Utilizando métodos de Engajamento Interativo em um Curso de Mecânica Clássica (Using Interactive Engagement Methods in an Advanced Classical Mechanics Course). Paper presented at the *XVI Simpósio Nacional de Ensino de Física*, Niterói, RJ, Brazil, June 2005.

Analysis of Bohmian Trajectories for a Quantized Black-Hole. Poster presented at the *XXV Encontro Nacional de Física de Partículas e Campos*. Caxambú, MG, Brazil, August 2004.

Estimating the Error in the Laplacian of a 64 channel EEG. Poster presented at the *XXVII Encontro Nacional de Física da Matéria Condensada*. Poços de Caldas, MG, Brazil. May 2004.

Search for an Ideal Filter to Identify Words in the Laplacian of a 64 Channel EEG. Poster presented at the *XXVII Encontro Nacional de Física da Matéria Condensada*. Poços de Caldas, MG, Brazil, May 2004.

Realism in Energy Transition Processes: an example from Bohmian Mechanics. Poster presented at the *XXIV Encontro Nacional de Física de Partículas e Campos*, Caxambú, MG, Brazil, October 2003.

Causal interpretation of spherically symmetric evaporating black holes. Poster presented at the *XXIV Encontro Nacional de Física de Partículas e Campos*, Caxambú, MG, Brazil, October 2003.

Identificação de palavras via Laplaciano de um EEG de 64 canais (Identifying Words via a 64 Channel EEG Laplacian). Poster presented at the *XXVI Encontro Nacional de Física da Matéria Condensada*. Caxambú, MG, Brazil, May 2003.

Usando Técnicas de Aprendizado Colaborativo com Alunos de Física, Química e Matemática” (Using Collaborative Learning Techniques with Students of Physics, Chemistry and Mathematics). Poster presented at the *IV Encontro Regional da Sociedade Brasileira de Física em Minas Gerais*, São João Del Rey, MG, Brazil, March 2003.

A Aplicação de uma Nova Metodologia de Ensino de Física Usando Aprendizado Colaborativo (Applying a New Physics-teaching Methodology Using Collaborative Learning). Presentation given at the *VI Escola de Verão para Professores de Prática de Ensino de Biologia, Física e Química*. Niterói, RJ, Brazil, May 2003.

Upper Probabilities in Quantum Mechanics. Poster presented at the *XIX Encontro Nacional de Física de Partículas e Campos*. Caxambú, MG, Brazil, August 1998.

Renormalization Group Study of the Conformal Limit of the Higher Derivative Dilaton. Poster presented at the *XIX Encontro Nacional de Física de Partículas e Campos*. Caxambú, MG, Brazil, August 1998.

CONFERENCE PRESENTATIONS, CONTINUED

The Causal Interpretation of Quantum Mechanics in Quantum Cosmology. Poster presented at the *XVIII Encontro Nacional de Física de Partículas e Campos*. Caxambú, MG, Brazil, October 1997.

A Collection of Probabilistic Hidden-Variable Theorems and Counterexamples. Poster presented at the *XVIII Encontro Nacional de Física de Partículas e Campos*. Caxambu, MG, October 1997.

Interpretação Causal de um Modelo Cosmológico Quântico com Campo Escalar Conformalmente Invariante (Causal Interpretation of a Quantum Cosmological Model with a Conformally Invariant Scalar Field). Poster presented at the *XVIII Encontro Nacional de Física de Partículas e Campos*. Caxambú, MG, Brazil, October 1997.

Violação de Desigualdades Quânticas com Campos Clássicos (Violation of Quantum Inequalities with Classical Fields). Poster presented at the *XVII Encontro Nacional de Física de Partículas e Campos*. Serra Negra, SP, Brazil, September 1996.

Aplicações da Interpretação de Bohm à Cosmologia Quântica (Applying Bohm's Interpretation to Quantum Cosmology). Poster presented at the *XVII Encontro Nacional de Física de Partículas e Campos*. Serra Negra, SP, September 1996.

Um Predicado de Suppes para a Relatividade Geral e Espaços-Tempos Genéricos (A Suppes Predicate for General Relativity and Generic Spacetimes). Poster presented at the *XI Encontro Nacional de Física de Partículas e Campos*. Caxambú, MG, Brazil, September 1990.

PUBLICATIONS SUBMITTED OR IN PREPARATION

de Barros, J. Acacio, Dzhafarov, E., Kujala, J. & Oas, G. Unifying Two Methods of Measuring Quantum Contextuality. Submitted to *Physical Review A*.

de Barros, J. Acacio, & Oas, G. Quantum Cognition and Negative Probabilities. Invited contribution to appear in *The Palgrave Handbook of quantum models in social science: applications and grand challenges*, Palgrave MacMillan Publishers.

de Barros, J. Acacio, & Oas, G. Some examples of contextuality in Physics and their implications to quantum cognition. Invited contribution to appear in the volume *Contextuality, from Physics to Psychology*.

Oas, G. & de Barros, J. Acacio. Examining quantum mechanical fundamental principles with negative probabilities. Invited contribution to appear in the volume *Contextuality, from Physics to Psychology*.

THESES SUPERVISED

Tibério Borges Vale, “Intepretação Causal em Buracos Negros Quânticos” (The Causal Interpretation of Quantum Black Holes), Masters thesis, UFJF, 2003.

Tibério Borges Vale, “A Interpretação de Bohm na Gravitação Quântica” (Bohm's Interpretation in Quantum Cosmology), Honors thesis, UFJF, 2003.

Glauco S. F. da Silva, “Métodos de Engajamento Ativo em Física I” (Interactive Engagement Methods in Physics I), Honors thesis, UFJF, 2003.

Ana das Mercês Pelinson, “Ação Efetiva Induzida por Anomalias para Solução Gravitacional Inflacionária” (Effective Action for an Anomaly Induced Gravitational and Inflationary Solution), Masters thesis, UFJF, 1999. (co-supervisor with I. Shapiro)

Marco Antônio Sagioro Leal, “Cosmologia Quântica e o Problema da Singularidade Inicial” (in Portuguese; Quantum Cosmology and the Singularity Problem), Masters thesis, UFJF 1998. (co-supervisor with N. Pinto-Neto)

Luis Antônio de Castro Henriques, “A Interpretação de Bohm da Mecânica Quântica” (in Portuguese; Bohm's Interpretation of Quantum Mechanics), Honors thesis, UFJF, 1996.

AWARDS, HONORS, AND GRANTS

Co-Investigator Minas Gerais Research Support Foundation (FAPEMIG) Research Grant Project: Effective Action in Quantum Gravity and Consequences to Cosmology	2001-2003
Principal Investigator Minas Gerais Research Support Foundation (FAPEMIG) Research Grant Project: Computational Limits to Constructs in Classical and Quantum Theories	1996-1997
Principal Investigator Special Program for Joint Research (PREVI/UFJF) Research Grant Project: Computational Limits (in Turing's sense) in Classical Theories	1996
Principal Investigator Special Program for Joint Research (PREVI/UFJF) Research Grant Project: Ontological Interpretations of Quantum Mechanics and Applications to Quantum Cosmology	1996
Postdoctoral Fellow at Stanford University Brazilian Federal Higher Education Sponsoring Bureau (Capes)	1991-1993
Doctoral Fellow at the Brazilian Center for Research in Physics Brazilian National Science and Technology Council (CNPq)	1989-1991

AWARDS, HONORS, AND GRANTS, CONTINUED

Masters Fellow at Brazilian Center for Research in Physics

1988-1989

Brazilian National Science and Technology Council (CNPq)

Scientific Initiation Undergraduate Fellow

1987-1988

Brazilian National Science and Technology Council (CNPq)

UNIVERSITY, DEPARTMENT, AND COMMUNITY SERVICE

Committee Member

2012-Present

San Francisco State University

College of Liberal & Creative Arts Technology Committee

Committee Chair

2011-Present

San Francisco State University

University Senate Fellowship Committee

Committee Member

2011-2014

San Francisco State University

University Senate Bachelors Requirement Subcommittee on GE Science

Ad-Hoc Committee Member

2011

San Francisco State University

Hearst/CSU Trustees Award selection committee

Ad-Hoc Committee Member

2011

San Francisco State University

Merage Foundation selection committee

Committee Chair

2008-2009

San Francisco State University

Liberal Studies Sneak Preview Committee

Organized the annual Liberal Studies open house event.

Committee Member

2008-2009

San Francisco State University

Center for Science and Math Education's Steering Committee

Committee Member

2008-2010

San Francisco State University

Liberal Studies Teacher Preparation Committee

Worked with faculty from different departments to propose changes to Liberal Studies that could be beneficial to students planning on being school teachers.

UNIVERSITY, DEPARTMENT, AND COMMUNITY SERVICE, CONTINUED

- Committee Member** 2007-2010
San Francisco State University
Liberal Studies Curriculum Committee
Worked on reorganizing the Liberal Studies program, turning it more interdisciplinary.
Developed courses for Liberal Studies.
- Committee Member** 2007-2011
San Francisco State University
Liberal Studies Council
Participated in the senate mandated council that oversees the Liberal Studies program.
- Panel Member** 2007-2011
San Francisco State University
Faculty Hearing Panel
- Workshop Facilitator** 2004
Municipal Department of Education of Juiz de Fora, Brazil
Juiz de Fora's "Educator Week"
Offered workshop on Active Engagement in Physics for state and municipal school teachers.
- Program Coordinator** 2001-2003
Federal University at Juiz de Fora, Brazil
Physics and Physics Teaching Undergraduate Programs
Coordinated the bachelors in physics and the physics teaching certification programs at the university.
- Senate Member** 2001-2003
Federal University at Juiz de Fora, Brazil
University Faculty Senate for Undergraduate Studies
Participated as a representative of the Physics programs at the University Senate.
- Committee Member** 2003
Federal University at Juiz de Fora, Brazil
Teaching Assistantship Committee
Evaluated proposals for use of university funded scholarships at the Institute for Exact Sciences.
- Committee Member** 2003
Federal University at Juiz de Fora, Brazil
University Undergraduate Admissions Committee
Created and evaluated university wide admissions criteria.

UNIVERSITY, DEPARTMENT, AND COMMUNITY SERVICE, CONTINUED

- Workshop Facilitator** 2003
Municipal Department of Education of Juiz de Fora, Brazil
Offered workshop on Teaching Physics with Collaborative Methods for state and municipal school teachers.
- Committee Chair** 2003
Federal University at Juiz de Fora, Brazil
Investigation Committee
Chaired a committee investigating professor misconduct.
- Committee Member** 2003
Federal University at Juiz de Fora, Brazil
Disciplinary Committee
Participated in a disciplinary committee to address a hazing problem at the Institute for Exact Sciences.
- Committee Chair** 2002-2003
Federal University at Juiz de Fora, Brazil
Physics Curriculum Committee
Chaired a committee on restructuring the undergraduate Physics and Physics Teaching programs.
- Committee Member** 2002
Federal University at Juiz de Fora, Brazil
Keller Method Committee
Participated in a committee to evaluate the Keller self-paced self-teaching methods in elementary physics courses.
- Vice-Head of the Physics Department** 1998
Federal University at Juiz de Fora, Brazil
- Committee Chair** 1998
Federal University at Juiz de Fora, Brazil
University Undergraduate Admissions Committee
Chaired the committee responsible for creating and evaluating university wide physics requirements for admissions.
- Coordinator** 1997-1998
Federal University at Juiz de Fora, Brazil
Juiz de Fora Physics Olympiad
Coordinated the first and second physics Olympiads at the state of Minas Gerais.

UNIVERSITY, DEPARTMENT, AND COMMUNITY SERVICE, CONTINUED

- Coordinator** 1998
Federal University at Juiz de Fora, MG, Brazil
Physics Week
Coordinated a series of physics related activities aimed at middle- and high-school students and teachers.
- Committee Member** 1998
Federal University at Juiz de Fora, MG, Brazil
Physics Lecturer Search Committee
Participated in a search committee for a Physics Lecturer position.
- Committee Member** 1997
Federal University at Juiz de Fora, Brazil
University Undergraduate Admissions Committee
Created and evaluated university wide admissions criteria.
- Program Coordinator** 1996-1997
Federal Universities at Juiz de Fora and Minas Gerais
Joint Masters Program
Coordinated a joint graduate program between the universities of Juiz de Fora and Minas Gerais, leading to the creation of a Masters in Physics program at the Federal University at Juiz de Fora.
- Committee Member** 1995-1997
Federal University at Juiz de Fora, Brazil
Physics Department Computer System and Infrastructure Committee
Participated in the committee that advised purchase and changes to the physics department computer infrastructure.
- Committee Member** 1995
Federal University at Juiz de Fora, Brazil
Collegiate of the Joint Physics Masters Program
Participated in the collegiate for the joint program between the university of Juiz de Fora and Minas Gerais.
- Committee Chair** 1995
Federal University at Juiz de Fora, Brazil
Visiting Professor Search Committee
Chaired a search and hiring committee for two Visiting Professor positions.

LANGUAGES

English (fluent)
Portuguese (fluent)
French & Spanish (basic reading and comprehension)

AFFILIATIONS

Brazilian Physical Society (SBF)
American Association of Physics Teachers (AAPT)
The Philosophy of Science Association (PSA)
Institute for Quantum Social and Cognitive Science (IQSCS)

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