

## Brief Curriculum Vitae of Ariel Caticha

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### Education

Ph.D. in Physics      California Institute of Technology (Caltech),  
Pasadena CA, USA (1985).  
M.Sc. in Physics      Universidade Estadual de Campinas (Unicamp),  
Campinas SP, Brazil (1979).  
B.Sc. in Physics      Universidade Estadual de Campinas (Unicamp),  
Campinas SP, Brazil (1976).

### Professional experience

9/01-present: Professor, Department of Physics, University at Albany-SUNY.  
9/96-9/01: Associate Professor, Department of Physics, University at Albany-SUNY.  
9/92-8/96: Assistant Professor, Department of Physics, University at Albany-SUNY.  
9/90-8/92: Joint appointment as Visiting Scientist at the National Institute for  
Standards and Technology and Research Associate at the Institute for  
Physical Science and Technology, University of Maryland.  
8/87-8/91: Assistant Professor, Instituto de Física “Gleb Wataghin”, Universidade  
Estadual de Campinas (Unicamp), Campinas SP, Brazil.  
9/85-7/87: Postdoctoral Research Associate, Department of Physics, University of  
Utah.  
9/80-6/85: Teaching Assistant, Department of Physics, Caltech.  
9/79-6/80: Earle C. Anthony Fellow, Caltech.

### Selected honors:

- University at Albany Excellence in Teaching and Advising Award (2003-2004).
- State University of New York Chancellor’s Award for Excellence in Teaching (2003-2004).
- Twice elected “paranymph” (in Portuguese “paraninfo”, a professor who is singled out for honors at the graduation ceremonies) by the students majoring in physics at the Universidade Estadual de Campinas, Brazil (1989 and 1990).

### Selected publications in Information Physics:

- “Consistency and linearity in quantum theory,” A.C., Phys. Lett. **A 244**, 13 (1998); online at [arXiv.org/abs/quant-ph/9803086](https://arxiv.org/abs/quant-ph/9803086).
- “Consistency, amplitudes and probabilities in quantum theory,” A.C., Phys. Rev. **A 57**, 1572 (1998); online at [arXiv.org/abs/quant-ph/9804012](https://arxiv.org/abs/quant-ph/9804012).

- “Insufficient reason and entropy in quantum theory,” A.C., *Found. Phys.* **30**, 227 (2000); online at [arXiv.org/abs/quant-ph/9810074](http://arXiv.org/abs/quant-ph/9810074).
- “Maximum Entropy, fluctuations and priors,” A.C., in *Maximum Entropy and Bayesian Methods in Science and Engineering*, ed. by A. Mohammad-Djafari, A.I.P. Vol. **568**, 94 (2001); online at [arXiv.org/abs/math-ph/0008017](http://arXiv.org/abs/math-ph/0008017).
- “Change, time and information geometry,” A.C., in *Maximum Entropy and Bayesian Methods in Science and Engineering*, ed. by A. Mohammad-Djafari, A.I.P. Vol. **568**, 72 (2001); online at [arXiv.org/abs/math-ph/0008018](http://arXiv.org/abs/math-ph/0008018).
- “Entropic Dynamics,” A.C., in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering*, ed. by R. L. Fry, A.I.P. Vol. **617**, 302 (2002); online at [arXiv.org/abs/gr-qc/0109068](http://arXiv.org/abs/gr-qc/0109068).
- “Yet another resolution of the Gibbs paradox: an information theory approach,” Chi-Yuan Tseng and A.C., in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering*, ed. by R. L. Fry, A.I.P. Vol. **617**, 331 (2002); online at [arXiv.org/abs/cond-mat/0109324](http://arXiv.org/abs/cond-mat/0109324).
- “Towards a Statistical Geometrodynamic,” p. 103 in *Decoherence, Information, Complexity and Entropy*, ed. by H.-T. Elze (Lecture Notes in Physics, Springer, 2003); online at [arXiv.org/abs/gr-qc/0301061](http://arXiv.org/abs/gr-qc/0301061).
- “Relative entropy and inductive inference,” in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering*, ed. by G. Erickson and Y. Zhai, A.I.P. Vol. **707**, 75 (2004); online at [arXiv.org/abs/physics/0311093](http://arXiv.org/abs/physics/0311093).
- “Maximum Entropy and Bayesian Data Analysis: Entropic Prior Distributions,” A.C. and R. Preuss, *Phys. Rev. E* **70**, 046127 (2004); online at [arXiv.org/abs/physics/0307055](http://arXiv.org/abs/physics/0307055).
- “Questions, Relevance and Relative Entropy” in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering*, ed. by V. Dose, R. Fischer, R. Preuss and U. von Toussaint, AIP Conf. Proc., **735**, 429 (2004); online at [arXiv.org/abs/cond-mat/0409175](http://arXiv.org/abs/cond-mat/0409175).
- “The Information geometry of Space and Time” in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering*, ed. by K. Knuth, A. Abbas, R. Morris, and J. Castle, AIP Conf. Proc. Vol. **803**, 355 (2006); online at [arXiv.org/abs/cond-mat/0508108](http://arXiv.org/abs/cond-mat/0508108).
- “Updating Probabilities” A. C. and A. Giffin, in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering*, ed. by A. Mohammad-Djafari, AIP Conf. Proc. Vol. **872**, 31 (2007); online at [arXiv.org/abs/physics/0608185](http://arXiv.org/abs/physics/0608185).
- “From Objective Amplitudes to Bayesian Probabilities,” in *Foundations of Probability and Physics-4* ed. by G. Adenier, C. Fuchs, and A. Khrennikov, AIP Conf. Proc. Vol. **889**, 62 (2007); online at [arXiv.org/abs/quant-ph/0610076](http://arXiv.org/abs/quant-ph/0610076).
- “Updating Probabilities with Data and Moments” A. Giffin and A.C., in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering*, ed. by K. Knuth et al., AIP Conf. Proc. Vol. XXX, (2007); online at [arXiv.org/abs/0708.1593](http://arXiv.org/abs/0708.1593).
- “Information and Entropy” A.C., in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering*, ed. by K. Knuth et al., AIP Conf. Proc. Vol. XXX, (2007); online at [arXiv.org/abs/0710.1068](http://arXiv.org/abs/0710.1068).

- “From Information Geometry to Newtonian Dynamics” A.C. and Carlo Cafaro, in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering*, ed. by K. Knuth et al., AIP Conf. Proc. Vol. XXX, (2007); online at [arXiv.org/abs/0710.1071](http://arXiv.org/abs/0710.1071).

## **Teaching Record**

### **Undergraduate courses:**

Space, Time and Gravity; Modern Optics; Mathematics for Physics; Statistical Physics; Classical Mechanics; Quantum Mechanics.

### **Graduate courses:**

Classical Electrodynamics; Statistical Physics; General Relativity; Quantum Mechanics; Quantum Field Theory; Information Physics; Geometry for Physics.

### **Supervision of graduate students:**

PhD: 7 completed, 4 in progress.

MS: 15 completed, 1 in progress.

Ariel Caticha

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