

Biographical Sketch:

PREDRAG CVITANOVIĆ

School of Physics, Georgia Institute of Technology

Professional Preparation:

- 1967–1969 Physics BS - Massachusetts Institute of Technology
- 1969–1973 Physics PhD - Cornell University
- 1973–1979 Postdoctoral - Stanford, I.A.S./Princeton, Oxford, Niels Bohr Institute

Appointments:

- 1980–1984 Assistant Professor - Nordita
- 1984–1986 Associate Professor - Chalmers University
- 1986–1990 Associate Professor - Niels Bohr Institute, Copenhagen
- 1990–2001 Professor - Niels Bohr Institute, Copenhagen
- 1997–2000 Professor - Northwestern University
- 2001– Glen P. Robinson Chair - Georgia Institute of Technology

Publications related to the proposed project:

- “Periodic orbit quantization of chaotic systems” (with B. Eckhardt), *Phys. Rev. Lett.* **63**, 823 (1989)
- “Recycling of strange sets: I. cycle expansions” (with R. Artuso and E. Aurell), *Nonlinearity* **3**, 325 (1990)
- “Spatiotemporal chaos in terms of unstable recurrent patterns” (with F. Christiansen and V. Putkaradze), *Nonlinearity* **10**, 55 (1997); `chao-dyn/9606016`
- “Trace formulas for stochastic evolution operators: Smooth conjugation method” (with C.P. Dettmann, R. Mainieri and G. Vattay), *Nonlinearity* **12**, 939 (1999); `chao-dyn/9807034`.
- “Chaotic Field Theory: a sketch”, *Physica A* **288**, 61 (2000); `nlin.CD/0001034`.
- “Deterministic chaos and noise in three in vitro hippocampal models of epilepsy,” (with M.W. Slutzky and D.J. Mogul), *Annals of Biomedical Engineering* **29**, 1 (2001).
- “Periodic orbit theory applied to a chaotically oscillating gas bubble in water” (with G. Simon, M.T. Levinsen, I. Csabai and Á. Horváth), *Nonlinearity* **15**, 25 (2002).
- “Variational method for finding periodic orbits in a general flow” (with Y. Lan) *Phys. Rev. E* **69**, 016217 (2004); `nlin.CD/0308008`

Other significant publications:

- “Sixth order magnetic moment of the electron” (with T. Kinoshita), *Phys. Rev. D* **10**, 4007 (1974)
- “Group theory for Feynman diagrams in non-Abelian gauge theories”, *Phys. Rev. D* **14**, 1536 (1976)
- *Universality in Chaos* (Adam Hilger, Bristol, 1984; 1989)
- *Group theory*, `www.nbi.dk/GroupTheory`, (Princeton University Press 2005, to appear)
- *Chaos: Classical and Quantum*, (with R. Artuso, R. Mainieri, G. Tanner, G. Vattay and others), `ChaosBook.org` (Niels Bohr Institute, 2004)

Synergistic Activities:

- Director, Center for Chaos and Turbulence Studies, Copenhagen, 1993–1998
- Director, Center for Nonlinear Science, Georgia Tech, 2001–present
- Editor of Cambridge University Press Nonlinear Science Series, 1996–present
- Honorary Editor (chief co-editor) Nonlinearity 1998-2003
- Secretary, Dynamics Days - Europe (1996–2002), as well as a number of other international schools and conferences
- Danish node coordinator, E.U. Network on nonlinear dynamics 1996-1999
- Director, Nordita “Chaos Summer Program”, May-Sep 1983; “Patterns, chaos and order”, NATO ASI, 1990; “Quantum chaos: theory and experiment”, NATO ARW, 1991
- Initiated and/or helped organize 23 conferences and workshops
- Course lecturer at 26 international advanced schools

Honors:

The Danish Physical Society Research Prize in Physics for 1993–94
Member of the Royal Danish Academy of Sciences and Letters
Corresponding Member of the Croatian Academy of Arts and Sciences
Fellow, Institute of Physics (UK)

Advisors of PI:

T. Kinoshita (Ph.D. Thesis Advisor), Tung-Mo Yan (Ph.D. Thesis Co-advisor), S. Adler, S. Drell, B. Lautrup, J.C. Taylor.

Thesis Advisor and Postgraduate-Scholar Sponsor:

- Current PhD students: J.J. Halcrow, D. Lippolis, J.E. Millan, R. Paškauskas, T.R. Shepherd, E. Siminos
- Current postdoctoral associates: Agapi Emmanouilidou, Mason A. Porter, Slaven Peles, Luz V. Vela-Arevalo, Thomas Bartsch
- Completed PhD: R. Artuso, E. Aurell, F. Christiansen, G. Gunaratne (main advisor M.J. Feigenbaum), K. Hansen, M.H. Jensen (main advisor P. Bak), Y. Lan, V. Putkaradze (main advisor T. Bohr), H.H. Rugh, P.E. Rosenqvist, G. Russberg, T. Schreiber (main advisor P. Grassberger) M.W. Słutsky (main advisor D.J. Mogul) N. Søndergaard
- Completed MS: E. Gyldenkerne, S.F. Nielsen
- Past postdoctoral associates: C. Beck, D. Biswas, C. Chandre, S. Creagh, P. Dahlqvist, H. Daido, C. Dettmann, H. Frisk, N. Garnier, B. Georgeot, T. Guhr, J. Haakansson, R. Horsley, M. Howard, Z. Kaufmann, P.G. Lauwers, R. Mainieri, J. Myrheim, M. Nordahl, M. Oxborrow, P.N. Scharbach, B. Söderberg, G. Tanner, D. Umberger, G. Vattay, N.D. Whelan, D. Wojcik

Current research support:

Center for Nonlinear Science (Glen Robinson Chair)
NSF Proposal #0457029: Quantization of strongly nonlinear field theories in terms of their unstable spatiotemporal periodic solutions (pending)

Other collaborators during the past 48 months:

G. Simon, M.T. Levinsen, I. Csabai, Á. Horváth, G. Palla, H. Elvang, A.D. Kennedy, A. Wirzba