
CURRICULUM VITAE

Name: Thomas Kreuz
Citizenship: German

Personal Address: 2636 Grand Ave, #344
San Diego, CA 92109, USA

Cell Phone (US): +1-858-232-6936
Cell Phone (Italy): +39-347-1454-921

Office address: Institute for Nonlinear Science (INLS)
University of California, San Diego (UCSD)
9500 Gilman Drive
La Jolla, CA 92093-0402, USA

Phone: +1-858-534-6876
Fax: +1-858-534-7664

E-Mail: tkreuz@ucsd.edu

Education

1979 - 1992	Elementary School and Gymnasium, Siegen, Germany
1992 - 1993	Civil Service as First Aid Assistant for the Red Cross, Siegen, Germany
1993 - 1998	Study of Physics, University of Bonn, Germany
1996 / 1997	Study of Physics, University of Edinburgh, Great Britain
1999	Diploma degree in Physics, University of Bonn, Germany
2003	PhD degree in Physics, University of Wuppertal, Germany
2004	Post-Doc position, Research Centre Juelich, Germany
2005 / 2006	Marie Curie Fellowship, University of Florence, Italy
2007 -	Marie Curie Fellowship, University of California, San Diego, USA

Research interests

- Univariate time series analysis: Symbolic Dynamics, Entropies, Mutual Information with time lag, Algorithmic Complexity, Surrogate Analysis
- Bivariate time series analysis: Cross Correlation, Mutual Information, Transfer Entropy, Phase Synchronization (Hilbert Transform, Wavelet Transform), Nonlinear Interdependences, Event Synchronization

- Application to nonlinear model systems: Coupling and Synchronization
- Application to Epilepsy: EEG Analysis, Focus Localization, Seizure Prediction
- Statistical Validation of Seizure Predictions: The Method of Measure Profile Surrogates
- Spike train analysis: Spike train synchronization, Reliability
- Neuronal dynamics: Spiking neuron models, Neuronal network dynamics, Neuronal coding
- Birdsong: Auditory feedback system

Stays and courses

- September 1996 - March 1997
Two terms at the Department of Physics, University of Edinburgh, Great Britain.
- September 2000
Nonlinear dynamics in the physics of environment.
Heraeus summer school, Potsdam, Germany.
- May / June 2002
Synchronization: Theory and Application.
Summer school, NATO Advanced Study Institute, Mellas, Crimea region, Ukraine.
- August 2005
Experimental and Computational Neurodynamics.
Summer school, Center for Theoretical Biological Physics (CTBP), La Jolla, CA, USA.
- March / April 2006
Research stay.
Institute for nonlinear sciences, La Jolla, CA, USA.

Projects

- January - March 1997
Project on 'Group Theory and Molecular Vibrations' (Supervisor: Prof. G. S. Pawley).
University of Edinburgh, Great Britain.

Grants

- March - September 2000
Graduate College 'Theoretical and numerical methods in particle physics and statistical physics'.
University of Wuppertal, Germany.

- October 2000 - May 2004
Transregional SFB 'Mesial Temporal Lobe Epilepsies - Project A2: Seizure Prediction'.
University of Bonn, University of Magdeburg, Research Center Juelich, Germany.
- February 2005 - January 2007
Marie-Curie Individual Intra-European Fellowship. Panel: PHY.
Proposal N. 0114344, Dynamical entropies in assemblies of neurons (DEAN).
Istituto dei Sistemi Complessi - CNR, Florence, Italy.
- April 2007 - March 2009
Marie-Curie Individual Outgoing Fellowship. Panel: PHY.
Proposal N. 040576A, Spike Time Dependent Plasticity (STDP).
Institute for nonlinear sciences (INLS), University of California San Diego (UCSD), La Jolla, USA; Istituto dei Sistemi Complessi - CNR, Florence, Italy.

Teaching experience

- August 1999 - February 2004
Assistant Teacher "Physics for students of Medicine, Biology and Pharmacy"
University of Bonn, Germany.
- April 26 - May 8, 2006
PhD Course "Simple models of biological interest: From proteins to neurons"
University of Florence, Italy

Referee experience

- Referee for Phys Rev Lett, Phys Rev E, Physics Letters A, Journal of Neuroscience Methods, Journal of Physiology (Paris), IEEE Signal Processing Letters, IEEE Transactions on Signal Processing and IEEE Transactions on Biomedical Engineering, Water Resources Research

Additional Skills

- Languages: German (native speaker), English, Italian (fluent), Spanish, French (basic)
- Operating systems: Windows, Unix
- Programming languages: Pascal, Delphi, C, C++
- Miscellaneous: LaTeX, HTML, MS-Office, Matlab

San Diego, USA, June 2007