CURRICULUM VITAE

Name:	Plamen Christov Ivanov
Position:	Director, Laboratory for Network Physiology
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Education

1988	M.S.	Theoretical Physics Condensed Matter Physics	Sofia University, Bulgaria.
1990	M.S.	International Relations	Sofia University, Bulgaria.
1998	Ph.D.	Cellular Biophysics	Boston University, Boston.
2007	D.Sc.	Statistical Physics	Bulgarian Academy of Sciences.

Postdoctoral Training

1998–1999	Postdoctoral Fellow	Statistical Physics applied to Physiologic Dynamics, Neural Control	Harvard Medical School, Laboratory for Nonlinear Dynamics in Medicine, Beth Israel Hospital

Faculty Academic Appointments

1999–2004	Senior Research Associate	Cardiology Division	Harvard Medical School Beth Israel Deaconess Medical Center, Boston, MA
1999–2007	Senior Research Associate	Center for Polymer Studies	Boston University, Boston, MA
2003–2007	Associate Professor	Condensed Matter Theory Group	Institute of Solid State Physics, Bulgarian Academy of Sciences.

			Sofia, Bulgaria.
2006–	Lecturer	Division of Sleep Medicine	Harvard Medical School
2006–	Associate Physiologist	Division of Sleep Medicine Department of Medicine	Brigham and Women's Hospital, Harvard Medical School
2008–2013	Research Associate Professor	Department of Physics	Boston University, Boston, MA
2008–	Professor	Condensed Matter Theory Group	Institute of Solid State Physics, Bulgarian Academy of Sciences, Sofia, Bulgaria.
2013–	Research Professor	Department of Physics	Boston University, Boston, MA

Other Professional Positions

1989–1991	Research Assistant	Institute of Solid State Physics, Bulgarian Academy of Sciences, Sofia.
1991–1993	Teaching Assistant	Physics Department, University of Rhode Island.
1993–1996	Teaching Assistant	Physics Department, Boston University.
1996–1998	Research Assistant	Center for Polymer Studies, Boston University.

Honors, Prizes, Competitions

1985–1988	Bulgarian Ministry of Education Scholarship for high academic achievement	Sofia University
1988	Sofia University Gold Medal for Scholarship (highest GPA in Physical Sciences over the 5-year course of studies)	Sofia University
1998	NSF Young Scientist Award	IUPAP International Conference on Statistical Physics 20, Paris, France

2001	NSF Young Scientist Travel Award	IUPAP International Conference on Statistical Physics 21, Merida, Mexico
2009–2011	Sustained Research Excellence Award	Biomedical Research Institute, Brigham and Women's Hospital, Harvard Medical School
2010	Elected Fellow (0.5% of the 50,000 APS members are elected Fellows each year)	American Physical Society (APS) Division of Biological Physics
2012	Georgi Nadjakov Medal	Bulgarian Academy of Sciences
2014	Pythagoras (Pitagor) Prize	Highest Bulgarian national award for scientific achievements bestowed by the President
2014	Gordon and Betty Moore Foundation	Data-Driven Discovery (DDD) Investigator Competition; One of 27 finalists (out of >1,000)
2015	W. M. Keck Foundation Award	Only 12 awards given in the USA for that year (out >1,300 applications)

Grant Review Activities

2004	Hungarian Scientific Research Fund (OTKA)	Hungarian Academy of Sciences
2007	The Focal Initiatives in Research in Science and Technology (FIRST) Fund, Israel Science Foundation (ISF)	The Israel Academy of Sciences and Humanities
2009	Recovery Act, NIH Challenge Grants in Health and Science Research (RC1)	National Institutes of Health (NIH)
2010	DFG Research Unit German Science Foundation (DFG)	Nonlinear Dynamics of the Heart
2011	Physics: Statistical Physics	United States-Israel Binational

	Review Panel	Science Foundation (BSF)
2011	Special Emphasis Panel Modeling and Analysis of Biological Systems Study Section (MABS) Scientific Review Group 2012/01	National Institutes of Health (NIH) Bioengineering Sciences and Technologies
2011	Superior Council of the National Fund for Scientific and Technological Development (FONDECYT)	National Commission for Scientific and Technological Development (CONICYT), Chile
2014	The Focal Initiatives in Research in Science and Technology (FIRST) Fund, Israel Science Foundation (ISF)	The Israel Academy of Sciences and Humanities
2016	Exact Sciences & Technology Israel Science Foundation (ISF)	The Israel Academy of Sciences and Humanities
2017	Grants Review Panel	United States Israel Binational Science Foundation (BSF)

Editorial Activities

2000–2002	Editor	Fluctuation and Noise Letters (FNL)
2004–	Editor	Journal of Biological Physics (JOBP)
2008–2013	Editor	Europhysics Letters (EPL)
2011–	Editor	Frontiers in Fractal Physiology
2013–	Editor	EPJ Nonlinear Biomedical Physics
2014–2016	Guest Editor	New Journal of Physics (NJP) Special Issue on Network Physiology and Network Medicine
2013–2016	Advisory Board Member	Europhysics Letters (EPL)
2014–	Editor	Journal of Nonlinear Dynamics
2015–	Editor	Physiological Measurement
2017-2018–	Editor	Special Issue in Physiological Measurement on Network Physiology: Redefining health and disease through networks of physiological interactions
2018–	Editor	New Journal of Physics (NJP)

Reviewer for the following Journals:

1995–	Physica A
1996–	Physical Review E

1997– Physical Review Letters
1998– Medical and Biological Engineering and Computing
1999– IEEE Transactions on Biomedical Engineering (IEEE-TBME)
1999– Journal of Geophysical Research: Solid Earth
1999– Fractals
1999– Chaos
2000– Circulation
2000– European Biophysics Journal
2002– Heart and Circulatory Physiology
2002– European Physics Journal B (EPJB)
2003– Journal of Mathematical Biology
2003– Gene
2004– Europhysics Letters (EPL)
2004– Journal of Geophysical Research: Atmospheres
2004– IEEE Transactions on Systems, Man and Cybernetics (IEEE-SMC)
2005– Proceedings of the National Academy of Sciences of USA (PNAS)
2006– Journal of Applied Physiology
2006– Applied and Computational Harmonic Analysis (ACHA)
2006– Complexity Journal
2006– EURASIP Journal on Applied Signal Processing
2007– Journal of Biomechanics
2007– New Journal of Physics
2007– Medical Physics
2007– Heart Rhythm
2008– Journal of Statistical Mechanics: Theory and Experiment (JSTAT)
2009– IEEE Engineering in Medicine and Biology (IEEE-EMB)
2010– PLoS Computational Biology
2010– Journal of Motor Behavior
2010– Autonomic Neuroscience: Basic and Clinical
2010– Brain Research
2010– Computer Methods and Programs in Biomedicine
2011– PLoS ONE
2011– Journal of Psychiatry and Neuroscience
2012– Theoretical Biology and Medical Modeling
2013– American Journal of Physiology
2013– Computational and Mathematical Methods in Medicine
2013– Gait and Posture
2013– Computers in Biology and Medicine
2013– Nature Communications
2013– International Journal of Computational Methods
2014– JSTAT
2015– Annals of Biomedical Engineering
2015– Scientific Reports

2015– Neuron
2015– Transactions on Neural Systems & Rehabilitation Engineering
2015– Philosophical Transactions of the Royal Society A
2016– Sleep
2016– Medical Engineering & Physics
2017– Physiological Measurement
2018– Science Advances

Leadership

1999–2004 Founding Member of *Physionet*, a Research Resource for Complex Physiologic Signals (Physionet – www.physionet.org)

Worked on the development and was a founding member of the Research Resource for Complex Physiologic Signals (Physionet;—www.physionet.org), a National Resource funded by the NIH/Center for Research Resources. Physionet is based on a collaboration between the Institute for Nonlinear Dynamics and Medicine at Harvard Medical School, HST at MIT, and the Center for Polymer Studies at Boston University. I contributed software for the analysis of physiologic data employing methods derived from biomedical engineering, signal processing, statistical physics and nonlinear mathematics. I helped create a database of surrogate signals with specific embedded properties useful for modeling physiologic processes, which has become well known in the field. This research resource is freely available in order to facilitate interdisciplinary research; it has given rise to numerous collaborations and exchanges of physiologic data and analytic techniques.

1996–1997 Organizer, Summer Term Workshops — Center for Polymer Studies, Boston University

Workshops organized for a selected group of high school teachers representing schools from all US states. These workshops exposed teachers to new developments at the frontier of physics research. My task was to introduce concepts from the theory of spin glasses and neural networks, and then search for and discuss the optimal approaches for presenting these concepts to high school students. Working closely with educators and supervising undergraduate students, I found that the most efficient way to teach students is to involve them actively in the material, and to pose achievable challenges allowing them to discover by themselves (with the guidance of the instructor) the most important concepts of the subject. I also worked on developing teaching manuals to be used in the teachers' classrooms.

2005 Organizer, Summer Term Workshops Sponsored by the NSF — Center for Polymer Studies, Boston University

Organized two summer term Virtual Molecular Dynamics Laboratory Workshops for faculty teaching college/university undergraduate courses. Developed modeling tools and tutorials which enable the student to visualize atomic and molecular motion, manipulate atomic interactions, and quantitatively investigate the resulting macroscopic properties while changing the parameters for a range of chemical and physical systems. Developed lesson plans and curriculum guides provided to the participating faculty for use in their home institutions.

Committees and Professional Service

2003	Program committee member	Conference on *Fluctuations and Noise in Biological, Biophysical, and Biomedical Systems*, 1-4 June 2003, Santa Fe, New Mexico, USA.
2004	Proposed and organized a Symposium and a Focused Session	*Statistical Physics Approaches to Physiology under Health and Disease*, American Physical Society March Meeting, Montreal, 2004.
2004	Program committee member	SPIE 2004 Second International Symposium on Fluctuations and Noise: Conference on *Fluctuations and Noise in Biological, Biophysical, and Biomedical Systems*, 26-28 May 2004, Canary Islands, Spain.
2004	International advisory committee member	*The Tenth International Symposium on Motor Control*, 25-27 September 2004, Sofia, Bulgaria.
2005	Program committee member	SPIE 2005 Third International Symposium on Fluctuations and Noise: Conference on *Fluctuations and Noise in Biological, Biophysical, and Biomedical Systems*, Austin, Texas, 2005.
2005	Organizer and Chair	Symposium on *Multiscale Aspects and Dynamical Networks in Integrated Physiologic Systems*, American Physical Society March Meeting, Los Angeles, CA, 2005.
2005	Program Committee Member	SPIE International Symposium on Microelectronics, MEMS and Nanotechnology: *Complex Systems I*, 12-15 Dec 2005, Brisbane, Australia.

2006	Organizer and Chair	Special Conference Session on: *"Physics in Physiology"*, 6th International Conference on Complex Systems ICCS2006, Marriott Boston Quincy, Boston, MA, USA, June 25-30, 2006.
2006	Program Committee Member	SPIE Complexity and Nonlinear Dynamics, SPIE International Symposium on Smart Materials, Nano- and Micro-Smart Systems, 10-13 December 2006, University of Adelaide, Adelaide, Australia.
2007	Program Committee Member	SPIE International Symposium on Microelectronics, MEMS, Nanotechnology and Biological Systems: *Complex Systems II (AU05)*, 4-7 Dec 2007, The Australian National University, Canberra, Australia.
2008	Program Committee Member	Complexity and Nonlinear Dynamics II, SPIE International Symposium on Smart Materials, Nano- and Micro-Smart Systems, 10 December 2008, RMIT University, Melbourne, Australia.
2009	Organizer and Chair	Workshop on Future and Emergent Technologies (FET) Cordis/FP7 European Commission Program for Information and Communication Technologies, 21-22 October, 2009, Bulgarian Academy of Sciences.
2014	Program Committee Member	International Work-Conference on Time Series, ITISE 2014, 25-27 June, 2014, Granada, Spain.
2014	Advisory Committee Member	International Conference on Statistical Physics 2014 7-12 July, 2014, Rhodes, Greece.
2014	Organizer and General Chair	22nd International Conference on Nonlinear Dynamics of Electronic Systems, NDES 2014 4-7 July, 2014, Albena, Bulgaria.
2016	Organizer and Chair	Special Conference Session on: *"Network Physiology"*, International Conference on Biological Oscillations and 9th Conference of the European Study Group on Cardiovascular Oscillations, 10-14 April 2016, Lancaster, UK

2017	Organizer and Director	First International Summer Institute on Network Physiology (ISINP), Lake Como School for Advanced Studies Como, Italy, July 24-29, 2017
2018	Scientific Committee Member	26th International Conference on Nonlinear Dynamics of Electronic Systems, NDES 2018 11-13 June, 2018, Acireale, Italy.

Professional Societies

1988–	Bulgarian Physical Society	Member
1996–	American Physical Society	Member
2015–	American Association for the Advancement of Science (AAAS)	Member

Funding Information

Current:

2011–2018 Prime Investigator and Director
National Institutes of Health (NIH)
Grant No. 1R01HL098437-01A1
Self Organized Criticality as a new paradigm of sleep regulation
Support: US$ 2,404,911
Major goal: investigate neuronal interactions involved in sleep regulation at the cellular level, neuronal network connectivity and topologies that lead to complex dynamical patterns of sleep-stage transitions and arousals. We will analyze a large database from (i) healthy human subjects; (ii) subjects with insomnia, narcolepsy, sleep apnea and other disorders; (iii) from healthy wild type mice and rats. We will also utilize data from experimental animal models of various sleep disorders, where specific sleep-related neuronal groups and brain areas are targeted, to discern which key elements of the neurobiological interactions may be responsible for the emergence of SOC complexity in sleep dynamics.

2014–2018 Prime Investigator and Director
USA-Israel Binational Science Foundation (BSF) Grant
BSF No. 2012219
Dynamical characteristics and phase transitions in physiologic interactions.
Support: US$ 146,400
Major goals: To identify bacis principles of integration between physiologic

systems and investigate the effect of coupling and synchronization on their output dynamics.

2015–2019 Prime Investigator and Director
W. M. Keck Foundation Award
Atlas of dynamic interactions among organ systems
Support: US$ 1,000,000
Major goals: To explore quantitatively the way in which organ systems interact as a network to produce distinct physiological states, both healthy and pathological. The research program will lay the foundations of a new emerging field, Network Physiology, which focuses on understanding physiological functions and conditions as emergent global behavior out of dynamical interactions among diverse systems with transient characteristics. The investigations will lead to the first Atlas of interactions among key systems in the human body.

Past:

1999–2004 Co-Investigator
National Institutes of Health / National Center for Research Resources
P41 RR13622
Research Resource for Complex Physiologic Signals
(PI: A.L. Goldberger, Co-PI: H.E. Stanley)
Support: US$ 5,000,000 for Research at 3 institutions over 5 years
Major goals: data acquisition; multichannel ambulatory recordings and analysis; statistical analysis of physiologic signals and modeling of multiple-component integrated physiologic systems dynamics and their mechanisms of neural regulation.

2002–2004 Co-Investigator
National Institutes of Health/National Heart Lung and Blood Institute
1R01HL-71972-01
Circadian Role in Diurnal Pattern of Cardiovascular Risk (PI: H.E. Stanley)
Support: US$ 200,000
Major goals: to identify mechanistic aspects of circadian regulation and autonomic neural control, leading to increased cardiovascular risk at specific circadian phases.

2003–2005 Co-Investigator
Spanish Ministerio de Ciencia y Technologia, Spain
BFM2002-00183
Study of transport of mechanical waves and electrical conduction in DNA. Effect of long-range correlations (PI: P. Carpena)
Support: US$ 15,000
Major goals: to identify the effects of fractal correlations on the mechanical

and conducting properties of low-dimensional disordered nanomaterials and biological macromolecules.

2002–2005 Co-Investigator
Spanish Ministerio de Ciencia y Technologia, Spain
BIO2002-04014-C02-02
Correlations in DNA sequences and large-scale genome structure
(PI: Jose L. Oliver)
Support: US$ 120,000
Major goals: to identify large-scale genomic structures (isochores) and quantify their statistics using novel segmentation algorithms.

2005–2008 Co-Investigator
National Institutes of Health/National Heart Lung and Blood Institute
2 RO1 HL071972
Circadian Role in Diurnal Pattern of Cardiovascular Risk (PI: H.E. Stanley)
Support: US$ 605,625
ranked in the top 3%; renewal based on the 2002–2004 award
Major goals: to identify independent contributions of circadian rhythms, level of physical activity and age on increased cardiovascular risk at 9–11am.

2008–2012 Prime Investigator and Director
Grant from Mitsubishi Chemical Corporation, Yokohama, Japan
Support: US$ 312,000
Major goal: to develop novel nonlinear dynamics measures of locomotion perform experiments and modeling of the neural mechnisms of human locomotion under different tasks and conditions.

2009–2011 Prime Investigator
Biomedical Research Institute, Brigham and Women's Hospital
Self-organized criticality in sleep regulation
Support: US$ 115,000
Major goals: to investigate how local neuronal interactions involved in sleep regulation at the cellular level, neuronal network connectivity and topologies lead to complex dynamical patterns of sleep stage transitions and arousals

2009–2013 Prime Investigator and Director
USA-Israel Binational Science Foundation (BSF) Grant
BSF No. 2008137
Mechanisms of neural control: from nonequilibrium dynamics of single physiologic systems to integrated synchronization networks
Support: US$ 120,000
Major goals: To (i) investigate the origin of the scale-invariant, multifractal

and nonlinear temporal structure in physiologic fluctuations, and how it relates to underlying mechanisms of neural regulation of cardiac, respiration and locomotor dynamics; (ii) develop physiologically-motivated models to account for the complex temporal structure in the dynamics of these systems and the role of neural regulation in establishing nonlinear coupling and synchronization across systems.

2009–2015 Prime Investigator and Director
Office of Naval Research (ONR) Grant
ONR Grant N000141010078
Complex networks approach to critical transitions and self-organization in sleep.
Support: US$ 405,000
Critical transitions and self-organization in sleep.
Major goal: To investigate the role of arousals in sleep, and to test whether brain dynamics exhibit critical behavior across sleep-stage and arousal transitions.

Worked with and directed 46 MS and PhD students and Postdoctoral Fellows :

Postdoctoral Fellows and Visiting Scholars:

1999–2000 Dr. Boris Podobnik
Physics Department, Boston University

1999–2002 Dr. Yossi Ashkenazy
Physics Department, Boston University

2000–2001 Dr. Verena Frohlinde-Schulte
Cardiology Division, Beth Israel Hospital, Harvard Medical School, and Physics Department, Boston University

2001–2002 Dr. Jan W. Kantelhardt
Physics Department, Boston University

2005—2008 Dr. Kun Hu
Circadian, Neuroendocrine and Sleep Disorders Program, Brigham and Women's Hospital, Harvard Medical School

2008—2009 Dr. Jin Li
Physics Department, Boston University.

2008—2010 Dr. Qianli Ma

Division of Sleep Medicine, Brigham and Women's Hospital,
Harvard Medical School

2008—2015 Dr. Ronny Bartsch
Division of Sleep Medicine, Brigham and Women's Hospital,
Harvard Medical School, and Physics Department, Boston University.

2011—2012 Dr. Jun Wang
Physics Department, Boston University

2012—2013 Dr. Justus Schwabedal
Division of Sleep Medicine, Brigham and Women's Hospital,
Harvard Medical School

2012—2015 Dr. Aylin Cimenser
Division of Sleep Medicine, Brigham and Women's Hospital,
Harvard Medical School, and Physics Department, Boston University.

2013—2014 Dr. Xiaodong Yang
Physics Department, Boston University

2013—2015 Dr. Qianli Ma
Division of Sleep Medicine, Brigham and Women's Hospital,
Harvard Medical School, and Physics Department, Boston University.

2013—2015 Dr. Chunhua Bian
Division of Neurology, Beth Israel Deaconess Medical Center (BIDMC),
Harvard Medical School, and Physics Department, Boston University.

2013—2016 Dr. Kang Liu
Division of Neurology, Beth Israel Deaconess Medical Center (BIDMC),
Harvard Medical School, and Physics Department, Boston University.

2014—2016 Dr. Aijing Lin
Physics Department, Boston University

2014—2016 Dr. Xiaolin Huang
Physics Department, Boston University

2014—2016 Dr. Gustavo Zampier
Physics Department, Boston University and Division of Neurology,
Beth Israel Deaconess Medical Center (BIDMC), Harvard Medical Scgool.

2015—2016	Dr. Liujun Chen Physics Department, Boston University
2015—2016	Dr. Huanmei Qin Physics Department, Boston University
2015—present	Prof. Yougui Wang Physics Department, Boston University
2016	Dr. Luca Faes Physics Department, Boston University
2016—2017	Dr. Chengyu Huo Physics Department, Boston University
2016—present	Dr. Xiyun Zhang Physics Department, Boston University
2016—present	Dr. Fabrizio Lombardi Physics Department, Boston University

Graduate PhD students:

1998–2003	Chung Lo (Ph.D. Boston University, Dec. 2003),
1999–2004	Kun Hu (Ph.D. Boston University, Dec 2004),
1999–2005	Zhi Chen (Ph.D. Boston University, May 2005),
2001–2004	Ainslie Yuen (Ph.D. Cambridge University, England, Dec.2004),
2002–2006	Miguel Casa, (Ph.D. UNED, Madrid, Spain, Oct. 2006),
2002–2006	Milen Zekov, (Ph.D. Sofia University, Bulgaria, Dec. 2006),
2003–2006	Limei Xu (Ph.D., Boston University, Sept. 2007),
2006–2008	Daniel T. Schmitt, (Ph.D., Ulm University, Germany, Nov. 2007),
2002–2009	Jia Shao, (Ph.D. Boston University, May 2010).
2009–2010	Yan Xu, (Ph.D. Beijing Normal University, Feb. 2011)

2011–2012 Aijing Lin, (Ph.D. Beijing Jiaotong University, Dec. 2012)

2015–2017 Wanting Xiong (Ph.D. Bejing Normal University, Dec 2017)

2016–2017 Manuel Gmez Extremera (Ph.D. Malaga University, Spain, Dec 2017)

2016–2017 Luis Fernando Ciria Perez (Boston Univ. and Univ. of Granada, Spain)

2017–present Jilin Wang (Physics Department, Boston University)

2018–present Rossella Rizzo (Boston Univ. and Univ. of Calabria, Cosenza, Italy)

Individual projects also with:

2002 Roman Karasik (M.Sc. Bar-Ilan University, Israel, Dec. 2003),

2002 Nir Sapir (M.Sc. Bar-Ilan University, Israel, Dec. 2003),

2001–2005 Koshik Matia (Ph.D., Boston University, Sept. 2006),

2002–2005 Pradeep Kumar (Ph.D., Boston University, Sept. 2007),

2003–2006 Limei Xu (Ph.D., Boston University, Sept. 2007),

Invited Presentations and Courses

Selected 144 invited talks at conferences, university lectures and seminars

Local Invited Presentations: 22 lectures and seminars

1998 Probability and Statistics Seminar at the Department of Mathematics, Boston University, May, 1998 – invited lecture.

1998 Center for BioDynamics at Boston University, May, 1998 – invited lecture.

2001 Circadian, Neuroendocrine and Sleep Disorders Program, Brigham and Women's Hospital, Harvard Medical School, 221 Longwood Avenue, RFB-486, Boston, 11 June, 2001 – invited lecture.

2002 Human Sleep and Chronobiology Research Meetings, Beth Israel Deaconess Medical Center, Harvard Medical School,

Boston, 17 January, 2002 – invited lecture.

2003 Harvard School of Public Health, Harvard Medical School,
Boston, 6 May, 2003 – invited lecture.

2006 Sleep Grand Rounds Seminars and Lectures, Division of Sleep Medicine,
Harvard Medical School, Boston, MA, 10 April 2006 – invited lecture.

2007 Circadian, Neuroendocrine and Sleep Disorders Program,
Brigham and Women's Hospital, Harvard Medical School,
221 Longwood Avenue, RFB-486, Boston, 5 February, 2007 — seminar talk

2007 Division of Sleep Medicine, Brigham and Women's Hospital,
Harvard Medical School, Boston, 15 October, 2007 — seminar talk.

2008 Circadian, Neuroendocrine and Sleep Disorders Program,
Brigham and Women's Hospital, Harvard Medical School,
221 Longwood Avenue, RFB-486, Boston, 14 April, 2008 — seminar talk.

2008 Division of Sleep Medicine, Circadian, Neuroendocrine and Sleep Disorders
Program, Brigham and Women's Hospital, Harvard Medical School,
221 Longwood Avenue, RFB-486, Boston, 01 December 2008 – seminar talk.

2009 Biophysics Departmental Seminar, Physics Department, Boston University,
12 February 2009 – seminar lecture.

2009 Division of Sleep Medicine, Circadian and Sleep Disorders Program,
Brigham and Women's Hospital, Harvard Medical School,
221 Longwood Avenue, RFB-486, Boston, 9 November 2009 – seminar talk.

2009 The Center for Interdisciplinary Research on Complex Systems (CIRCS)
and Physics Department at Northeastern University,
Boston, 1 December, 2009 – invited lecture.

2010 Department of Neurology, Beth Israel Deaconess Medical Center,
Harvard Medical School, 29 March, 2010 – invited lecture.

2010 Center for Computational Science (CCS) Seminar
Boston University, Boston, MA, 2 April, 2010 – invited lecture.

2013 Center for Complex Networks Research (CCNR) and Department of Physics
Northeastern University, Boston, MA, 25 April, 2013 – invited lecture.

2015 Center for Interdisciplinary Research on Complex Systems (CIRCS) and Department of Physics, Northeastern University, Boston, 24 March, 2015 – invited lecture.

2015 Center for Systems Neuroscience, Boston University, Boston, MA 04 November, 2015 – invited lecture.

2016 Data Science Initiative, Boston University Data Science Day (BUDS), Boston, 20 January, 2016 – plenary speaker.

2016 Physics Department, Boston University, Boston, MA 25 October, 2016 – departmental colloquium.

2017 HPC Futures: Ideas and Planning for Research Computing at Boston area Universities, Institutes, Hospitals and Companies Hyatt Regency Cambridge, Cambridge, MA, 30 June 2017 – plenary talk

2017 Boston Medical Center, Neurology Department Boston, MA, 17 August, 2017 - seminar talk

National Invited Presentations: 22 lectures and seminars

2000 Workshop on Fractals in Biology, Santa Fe Institute, New Mexico, 29 November - 3 December, 2000 – invited lecture.

2001 Sixth SIAM Conference on Applications of Dynamical Systems, Focus Session on Long-Range Correlations in Dynamics and Biology, Snowbird, Utah, 20-24 May, 2001 – invited lecture.

2001 The Center for Interdisciplinary Research on Complex Systems (CIRCS) and Physics Department at Northeastern University, Boston, 13 November, 2001 – invited lecture.

2003 SPIE's First International Symposium on Fluctuations and Noise, Santa Fe, New Mexico, USA, 1-4 June, 2003 – invited lecture.

2003 Department of Statistics, The Ohio State University, Columbus, Ohio, 2 October 2003 – invited lecture at the Statistics and Biostatistics Colloquium Series.

2004 Department of Physics, The Notre Dame University, Notre Dame, Indiana, 3 March 2004 – invited departmental seminar.

2004 Physics Department, The George Washington University,
Washington DC, 14 March 2004 – invited departmental seminar.

2004 Department of Physics, Wesleyan University, Middletown, CT,
10 November, 2004 – invited lecture at the condensed matter seminar.

2004 Center for Complex Systems, Brandeis University, Watertown, MA,
6 December, 2004 – invited lecture at the neurodynamics seminar.

2004 Center for Nonlinear Studies (CNLS) and Institute for Complex Adaptive
Matter (ICAM), Los Alamos National Laboratory, NM,
15-16 December, 2004 – two invited lectures.

2005 American Physical Society Meeting, March Meeting, Los Angeles, 2005
– invited lecture, symposium organizer and chair; press conference.

2006 6th International Conference on Complex Systems (ICCS2006),
Marriott Boston Quincy, Boston, MA, USA, 25-30 June, 2006
– organizer and chair of a Special Conference Sessions on "Physics in Physiology".

2006 Special Symposium on Coordination of Physiological Rhythms,
The 28th Annual International Conference, IEEE Engineering in Medicine and
Biology Society (EMBS), New York City, 30 Aug. - 3 Sept. 2006 – invited talk.

2008 Department of Physics and Astronomy, University of Missouri at St. Louis,
11 April 2008 – delivered the Departmental Colloquium talk.

2009 Center for Nonlinear Dynamics, Department of Physics, University of Texas at Austin
Austin, 9-12 October, 2009 - invited Departmental Colloquium talk

2011 MURI Review, Office of Naval Research Meeting, University of California San Diego
La Jolla, CA , 10 January, 2011 - invited talk

2011 Winter School for Nonlinear Dynamics, University of California San Diego
La Jolla, CA , 11-12 January, 2011 - invited talk

2012 Sleep 2012, Annual Meeting of the American Sleep Society, 10-15 June, Boston.

2012 Introduction to Network Medicine, Harvard Catalyst Program,
Cambridge, MA, 15-17 October 2012 – invited lecture

2013 Physics Department, Yeshiva University, New York, NY

05 November 2013 – departmental seminar

2015 Physics Department, Emory University, Atlanta, GA
05 May 2015 – departmental colloquium

2015 Physics Department, Georgia Institute of Technology (GeorgiaTech)
Atlanta, GA, 6 May 2015 – Nonlinear Science and Mathematical Physics Seminar

International Invited Presentations: 100 lectures and seminars

1987 Helsinki University, Physics Dept., Finland,
Oct. 1987 – invited presentation.

1998 Center for Informatics and Computer Science, University of Amsterdam,
August, 1998 – invited lecture.

1999 Physics Department, Marburg University, Germany,
2 June, 1999 – invited lecture.

1999 International Conference on Facets of Universality in Complex Systems:
Climate, Biodynamics and Stock Markets, Schloss Rauischholzhausen, Germany,
7-11 June, 1999 – invited lecture.

1999 Meeting of the European Research Project on Sleep, den Haag, The Netherlands,
12 June, 1999 – invited guest presentation.

1999 Seminar of the Group for Nonlinear Dynamics, Physics Institute,
Potsdam University, Germany, 14 June, 1999 – invited lecture.

1999 2nd International Conference on Unsolved Problems of Noise (UPoN '99),
Adelaide, Australia, 11-15th July 1999 – invited lecture.

1999 University of New South Wales, Mathematics Department, Sydney, Australia,
18 July, 1999 – invited lecture.

1999 Mitsubishi Chemical Corporation, Yokahama, Japan,
11 November, 1999 – invited lecture.

1999 The University of Tokyo, Graduate School of Education, Tokyo, Japan,
13 November, 1999 – invited lecture.

1999 Public presentation organized by Dai-ichi Pharmaceutical Co.

"Statistical Physics Points-of-View on Heart Rate Variability",
Tokyo, Japan, 15 November, 1999 – plenary lecture.

2000 Special Seminar at Minerva Center for the Physics of Mesoscopics,
Fractals and Neural Networks, Department of Physics, Bar-Ilan University,
Ramat-Gan, Israel, 7 June, 2000 – invited lecture.

2000 Institute Seminar at the Institute of Solid State Physics,
Bulgarian Academy of Sciences, Sofia, Bulgaria, 19 June, 2000 – invited lecture.

2000 Sixth Granada Seminar on Modeling Complex Systems, Institute Carlos I
for Theoretical and Computational Physics, Granada, Spain,
4-10 September, 2000 – invited lecture.

2000 Seminar at Departamento de Fisica Aplicada II, Universidad de Malaga,
Malaga, Spain, 8 September, 2000 – invited lecture.

2000 Seminar at Departamento de Fisica Fundamental, UNED, Madrid,
Spain, 12 September, 2000 – invited lecture.

2000 Computational Physics Conference 2000, Brisbane, Australia,
3 December, 2000 – opening plenary lecture on Section Biophysics.

2000 14th National Congress of the Australian Institute of Physics, Adelaide University,
South Australia, 10-15 December, 2000; Section Medical Physics – invited lecture.

2001 NATO Advanced Research Workshop on Application of Physics in Economic
Modelling, Prague, Czech Republic, 8-10 February, 2001 – invited lecture.

2001 Department of Electrical and Electronic Engineering,
The University of Adelaide, Australia, 29 August, 2001 – invited lecture.

2001 Dipartimento di Scienze Fisiche, Universita di Napoli "Federico II",
Complesso universitario Monte S. Angelo, Italy, 18 September, 2001 – invited lecture.

2001 International Workshop on Modelling Bio-medical Signals,
Center of Innovative Technologies for Signal Detection and Processing,
Physics Department, University of Bari, Italy, 20-22 September, 2001 – plenary
invited lecture.

2001 International Workshop on Analyzing and Modelling Event-Related Brain Potentials:
Cognitive and Neural Approaches, University of Potsdam, Potsdam, Germany,
29 November - 1 December, 2001 – invited lecture.

2001 International Conference on Horizons in Complex Systems,
University of Messina, Italy, 5-8 December, 2001 – invited lecture.

2001 265. WE-Heraeus-Seminar on Synchronization in Physics and Neurosciences,
Physikzentrum Bad Honnef, Germany, 10-12 December, 2001 – invited lecture.

2002 International Conference on Long Range Dependent Stochastic Processes
and their Applications, Indian Institute of Science, Bangalore, India,
7-12 January, 2002 – invited lecture.

2002 1st Annual Meeting of the DFG-Schwerpunktprogramm 1114, Reisensburg castle in
Guenzburg, Germany, 25 February - 2 March, 2002 – invited lecture.

2002 7th Granada Seminar on Computational and Statistical Physics, Institute Carlos I,
Granada, Spain, 2-7 September, 2002 – invited lecture.

2002 Instituto de Biotecnologia, Universidad de Granada, Granada, Spain,
11 September, 2002 – invited lecture.

2002 Departamento de Fisica Fundamental, Facultad de Ciencias, UNED, Madrid, Spain,
13 and 17 September, 2002 – invited lectures.

2002 The Second Nikkei Econophysics Research Workshop and Symposium,
Nikkei Headquarters, Tokyo, Japan, 11-14 November, 2002 – invited lecture.

2003 International Workshop on Randomness and Complexity, Eilat, Israel,
5-9 January, 2003 – invited lecture.

2003 Institute Seminar at the Institute of Solid State Physics, Bulgarian Academy of
Sciences, Sofia, Bulgaria, 8 April, 2003 – invited lecture.

2003 Physics Department, Sofia University, Bulgaria,
10 April, 2003 – invited lecture.

2004 Department of Bioengineering, Imperial College London, London, UK,
9 March 2004 – invited lecture.

2004 Department of Mathematics and Physics, Albert-Ludwigs-Universitaet,
Freiburg, Germany, 30 August 2004 – invited lecture.

2004 The X-th International Symposium on Motor Control, Sofia, Bulgaria,
25-27 September 2004 – invited lecture.

2004 Institute of Solid State Physics, Bulgarian Academy of Sciences, Sofia, Bulgaria, 30 September, 2004 – invited lecture.

2005 WE-Heraeus-Seminar on Physics in Cardiology, Physikzentrum Bad Honnef, Germany, 9-12 May 2005 – invited lecture.

2005 University of Marburg, Physiology and Neurosciences Department, Marburg, Germany, 13 May 2005 – invited departmental seminar.

2007 Institute of Solid State Physics, Bulgarian Academy of Sciences, Sofia, Bulgaria, 20 March, 2007 – invited lecture.

2007 Sofia Chaos Club, Institute of Biomechanics, Bulgarian Academy of Sciences, Sofia, Bulgaria, 26 March, 2007 – invited lecture.

2007 11th China Academic Conference on Biomedical Physics, Zhejiang Normal University, Jinhua, Zhejiang, P. R. China, 25-28 October, 2007 – opening plenary lecture.

2007 Physics Department, Nanjing University, Nanjing, P. R. China, 30 October, 2007 – departmental seminar, invited lecture.

2007 Institute for Biomedical Engineering, Nanjing University, Nanjing, P. R. China, 1 November, 2007 – invited talk.

2007 Institute of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, P. R. China, 6 November, 2007 – invited talk.

2007 Institute of Complex and Social Systems, Beijing Normal University, Beijing, P. R. China, 8 November, 2007 – departmental seminar, invited lecture.

2007 Physics Department, Beijing Normal University, Beijing, P. R. China, 9 November, 2007 – departmental seminar, invited lecture.

2008 International Workshop on Modelling Anomalous Diffusion and Relaxation, Jerusalem, Israel, 23-28 March, 2008 – invited lecture.

2008 Department of Neurology, Sourasky Medical Center, Tel Aviv, Israel, 31 March, 2008 – invited lecture.

2008 Meeting of the European Physical Society and the Editorial Board of Europhysics Letters, Stockholm, Sweden, 8-12 May, 2008

2008	5th European Conference on Complex Systems (ECCS2008), Jerusalem, Israel, 14-19 September, 2008 - invited lecture.
2008	Meeting on Databases and Infrastructure at the European Commission, Information Society and Media, Future and Emerging Technologies, Brussels, Belgium, 11 December 2008 – invited presentation.
2009	International Israel Science Foundation and Minerva Workshop: "The Science of Complexity", Eilat, Israel, 29 March - 1 April, 2009 - invited lecture.
2009	Meeting of the European Physical Society and the Editorial Board of Europhysics Letters, Berlin, Germany, 8-12 May, 2009
2009	International Conference on Complexity in Physics Ecole Normale Superieure de Lyon, France, 1-5 June, 2009 – invited lecture.
2009	International Workshop on "Physiological Networks: Theory, Implementation and Application", FP6 EU-Project DaphNet, The Castle of Rauischholzhausen Conference Center, Marburg, Germany, 17-19 June – plenary invited lecture.
2009	Workshop on Future and Emergent Technologies (FET), Cordis/FP7 European Commission Program for Information and Communication Technologies, Sofia, Bulgaria, 21-22 October, 2009 – plenary invited lecture.
2009	Faculty of Psychology, University of Granada, Spain Granada, 18 November, 2009 – invited lecture.
2010	Headquarters, Mitsubishi Corporation, Tokyo, Japan, 14-23 April 2010 – plenary invited lecture.
2010	Meeting of the European Physical Society and the Editorial Board of Europhysics Letters, CERN, Geneva, Switzerland, 6-8 May, 2010
2010	International Biosignal 2010 Conference: Advanced Technologies in Intensive Care and Sleep Medicine. Berlin, Germany, 14-16 July 2010 – plenary speaker, invited lecture.
2011	EPL25: International workshop for the 25th Anniversary of EPL - the letters journal exploring the frontiers of Physics; Bavarian Academy of Science and Humanities, Munich, Germany, 2-4 May, 2011

2011 Meeting of the European Physical Society and the Editorial Board of Europhysics Letters, Bavarian Academy of Science and Humanities, Munich, Germany, 5 May, 2011

2011 The first International Workshop on Complexity and Data Mining (IWCDM2011) Nanjing, China, 24-28 September, 2011 – plenary speaker, invited lecture.

2011 Institute for Biomedical Engineering, Nanjing University, Nanjing, China. 27 September, 2011 – invited talk.

2012 Meeting of the European Physical Society and the Editorial Board of Europhysics Letters, European Physical Society Headquarters, Mulhouse, France, 3-5 May, 2012.

2012 International Conference on Frontiers in Statistical Physics and Complex Systems, Catania, Italy, 2-5 June 2012 – invited lecture.

2012 Physics Department, Unversity of Palermo, Palermo, Sicily, 7 June 2012 – invited lecture.

2012 European Conference on Complex Systems, ECCS12, Brussels, Belgium, Symposium on Networks of Networks, 3-7 September 2012 —- invited speaker.

2012 Institute of Solid State Physics, Bulgarian Academy of Sciences, Sofia, Bulgaria, 18 October, 2012 – invited lecture.

2013 Institute of Physics, Academia Sinica, Taipei, Taiwan, 11-13 March 2013 – a series of 3 invited lectures.

2013 Physics Department, National Central University, Zhongli, Taiwan, 14 March 2013 – departmental seminar lecture.

2013 Meeting of the European Physical Society and the Editorial Board of Europhysics Letters, Madrid, Spain, 9-11 May, 2013

2013 Physics Department, University of Bari, Bari, Italy, 16 May, 2013 – departmental seminar lecture.

2014 8th Conference of the European Study Group on Cardiovascular Oscillations, ESGCO 2014; Fai della Paganella, Trento, Italy, 25-28 May, 2014 – keynote speaker.

2014 Department of Biomedical Engineering, Politecnico di Milano, Milano, Italy, 30 May, 2014 – invited lecture.

2014 22nd International Conference on Nonlinear Dynamics of Electronic Systems, NDES 2014; Albena, Bulgaria, 4-6 July, 2014 – invited talk.

2014 Gordon and Betty Moore Foundation, Data-Driven Discovery Investigator Competition Symposium, Palo Alto, California, 28-29 July, 2014 – invited talk.

2014 International Conference on Computing in Cardiology, Cambridge, MA, USA, 7-10 Sept 2014 – regular talk.

2015 23rd International Conference on Nonlinear Dynamics of Electronic Systems, NDES-2015; Como, Italy, 7-11 Sept 2015 – plenary speaker.

2016 Telecommunications Engineering School and Department of Applied Physics II, Malaga University, Malaga, Spain, 04 April 2016 – colloquium talk.

2016 School of Industrial Engineering, Malaga University, Malaga, Spain, 05 April 2016 – seminar talk.

2016 Mind, Brain and Behaviour Research Centre (CIMCYC) and Faculty of Psychology, University of Granada, Granada, Spain, 07 April 2016 – invited lecture.

2016 International Conference on Biological Oscillations and 9th Conference of the European Study Group on Cardiovascular Oscillations, Lancaster, UK, 11 April 2016 – conference talk.

2016 Physics Department and School of Medicine, University of Bari Aldo Moro, Bari, Italy, 29 May 2016 – university public lecture.

2016 Georg-August-Universitaet Goettingen, Goettingen, Germany, 01 November 2016 – SFB Colloquium.

2016 Max Planck Institute for Dynamics and Self-Organization (MPIDS), Goettingen, Germany, 02 November 2016 – Max Planck Institute Colloquium.

2016 School of Systems Science, Beijing Normal University, Beijing, China, 14 November 2016 – seminar talk.

2016 Beijing Normal University Library, Beijing, China, 14 November 2016 – university public lecture.

2016 Institute of Systems Science, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China, 15 November 2016 – invited lecture.

2016 Department of Mathematics, School of Science, Beijing Jiaotong University, Beijing, 17 November 2016 – departmental colloquium.

2016 Department of Mathematics, School of Science, Beijing Jiaotong University, Beijing, 18 November 2016 – seminar talk.

2016 Institute of Acupuncture and Moxibustion, China Academy of Chinese Medical Sciences, Beijing, 23 November 2016 – invited lecture.

2016 24th Annual Meeting of the German Sleep Society and the European Society of Sleep Medicine, Dresden, Germany, 02 Dec 2016 – keynote opening talk to an audience of 2300 medical and clinical specialists and health industry.

2017 3rd BCAM Workshop on Quantitative Biomedicine for Health and Disease
BCAM-Basque Center for Applied Mathematics
Bilbao, Basque Country, Spain, 21-22 Feb. 2017 – invited lecture.

2017 25th International Conference on Nonlinear Dynamics of Electronic Systems (NDES)
"Novel technologies from knowing how networks work"
Zernez, Switzerland. 5-7 June, 2017 – invited lecture

2017 First International Summer Institute on Network Physiology (ISINP)
Lake Como School of Advanced Studies, Como, Italy
July 24-29, 2017 – keynote opening talk.

2018 International Workshop on Understanding Oscillatory Dynamics
Potsdam University, Germany, 15-16 FEbruary, 2018 – invited talk.

Media Reports: 40 articles in major newspapers and magazines featured our research

2018 "Here's How High Body Temperature Puts Infants at Risk of Sudden Death."
Medical Daily, April 26, 2018.

2018 "New link between sleep arousals and body temperature may also be connected to SIDS."
EurekAlert! The Global Source for Science News, April 25, 2018

2017 Elena Roda: "Scoprire la Rete del Corpo da Como una Nuova Scienza."

("On Lake Como is born a new science revealing the secrets of the human body")
La Provincia, 29 July, 2017

2016 Network Physiology selected for the **2016 Calender of the Institute of Physics (IOP)**, February cover titled: "Bodily functions: The new science of network physiology"

2016 **MedicalPhysicsWeb** highlights Network Physiology, 10 November, 2016
http://medicalphysicsweb.org/cws/article/research/66939

2016 Jon Cartwright: "Revealing the network within: Can we map all the information being circulated in the human body, and would doing so be any use?
Jon Cartwright explores the emerging interdisciplinary field of network physiology."
Physics World magazine, 01 February, 2016.
http://physicsworld.com/

2015 Kevin Hartnett: "Bringing big data to bear on organ failure."
The Boston Globe, 11 November, 2015.
https://www.bostonglobe.com/

2015 Cat Wilson: "How a living organ atlas could help save lives in the ER."
HealthyOrbit, 30 September, 2015.
http://healthyorbit.com/

2015 Kate Becker: "How an atlas of living organs could save lives."
Futurity Magazine, 28 September, 2015.
http://www.futurity.org/

2015 Ross Hsu : "BU physicist on creating new, math-driven field of medicine."
The Daily Free Press, 29 September, 2015.
http://dailyfreepress.com/

2012 Elizabeth Quill: "When Networks Network: Once studied solo, systems display surprising behavior when they interact."
Science News, vol. 182(6) p.18, 22 September, 2012.

2012 Marit Slavin: "How networks help to understand sleep"
Haaretz newspaper, 24 April 2012
http://bar-ilan.haaretz.co.il/

2012 Preetam Schramm: "Sleep Disorders and Neurodegenerative Diseases." July, 2012.
e-Journal of Age Management Medicine, Age Management Medicine Group (AMMG)
www.agemed.org/AMMGejournal/July2012/

2012 "Physiological Networks and the Body's Complex Communications. "
BWH Clinical and Research News Highlights
www.brighamand womens.org, 12 April, 2012.

2005 Charlotte Schubert: "Morning Madness"
Nature Medicine: Research Highlights, vol.11(2), 4 February, 2005.

2005 Guy Gugliotta: "Heartbeat, 'Body Clock' Linked."
Science Section, **Washington Post**, page A05, 3 January, 2005.
http://www.washingtonpost.com/wp-dyn/articles/A43455-2005Jan2.html

2004 Sarah Graham: "Heart Rhythms Seem Circadian in Nature."
Scientific American, 30 December, 2004.

2004 Phillip F. Schewe and Ben Stein: "Why do heart attacks occur most frequently between 9 and 11 AM?" **Physics News Update: The American Institute of Physics Bulletin of Physics News**, Number 713, 27 December, 2004.
http://www.aip.org/pnu/2004/split/713-1.html

2004 Ann Marie Menting: "Body's Biological Clock Found to Affect Cardiac Rhythm Patterns in Healthy Adults: Statistical physics approach to analysis of heartbeat pattern uncovers link to circadian cycle." in **Boston University News and Events**, 20 December, 2004.

2004 Miranda Hitti: "Morning Heart Attacks May Follow Body's Clock: Circadian Rhythms Influence the Heart, Study Shows." **WebMDHealth**, 20 December, 2004
http://my.webmd.com/content/article/98/104885.htm

2004 Phil Schewe and Ben Stein: "Migraine Sufferers Exhibit Hypersynchronized Brain Activity."
Physics News Update: the American Institute of Physics Bulletin,
Number 679 #2, 1 April, 2004.
http://www.aip.org/enews/physnews/2004/split/679-2.html

2004 Philip Ball: "Techno hits basic beat: Musical analysis unveils a hierarchy of sophistication."
Nature Science Update, 7 January, 2004.
http://www.nature.com/nsu/040105/040105-4.html

2003 Physicswatch: "Researchers reveal prime predictability", **CERN Courier: International Journal of High-Energy Physics**, IoP Magazines, vol. 43, No.4, 2003.
http://www.cerncourier.com/main/article/43/4/8

2003 Philip Ball: "Prime numbers not so random? A kind of order may be buried in the occurrence of indivisible numbers." **Nature Science Update**, 24 March, 2003.
http://www.nature.com/nsu/030317/030317-13.html

2002 **Nature Research Highlights:** "In brief: Disorderly conduct. Investigating the effects of correlated disorder on extended-state conduction", 29 August, 2002.
http://www.nature.com/plink/highlights/6901-3.html

2002 Taylor McNeil: "Bring on the sandman: Boston University physicists find odd patterns in sleep", **The Bostonia Magazine**, 2 Number, p.31-32, Summer 2002.

2002 Michael Brooks: "Snooze control: Why sleep is a game of chance", story and cover page in **New Scientist**, vol.173, N.2331, p.38-40, 23 February, 2002.
http://archive.newscientist.com/archive.jsp?id=23315000

2002 Cover selection for the Proceedings of the National Academy of Sciences of the USA 2002; vol. 99[suppl 1]: 2466-2472.

2001 Randy Atkins: "Mysterious Ways of the Heart: New Understanding May Lead to Earlier Diagnoses". **Physics Central**, 21 February, 2001
http://www.physicscentral.com/news/news-01-4.html
Media of the American Physics Society (http://www.aps.org) and **Reports of the American Institute of Physics**
http://www.aip.org/isns/reports/2001/008.html

1999 Jens Thomas: "A Different Beat: You may be dreamy while you're asleep, but your heart is being rigorously policed", **New Scientist**, N.2215, p.8, 4 December, 1999.
Featured also on **Complexity Digest** 1999.
http://www.comdig.org/ComDig99b5/

1999 Stefan Greschik:"Das Gesetz in Chaos", Science Section, **Sueddeutsche Zeitung**, N.152, p. V2/10, July 6, 1999.

1999 "Multifractality in human heartbeat dynamics", Math in the Media, **Media of the American Mathematical Society**, July 1999.
http://www.ams.org/new-in-math/note-archive.html

1999 San Francisco, **United Press International (UPI)**: "New technique can identify bad hearts early, scientists claim", 7 July, 1999.

1999 "Revealing the Complex Patterns of Cardiac Disease",
Science Daily Magazine, June 1999.
http://www.sciencedaily.com/releases/1999/06/990604081236.htm
the **Boston University News Release**, 2 June, 1999.

1999 Taylor McNeil:"A Heartbeat Away: The Hidden Difference in Healthy and Unhealthy

Hearts", **The Bostonia Magazine**, 30 June, 1999.

1998 David Ehrenstein: "Separating the good hearts from the bad".
Physical Review Focus, 15 September, 1998.
selections from Physcal Review Letters: http://focus.aps.org/v2/st12.html

1998 M.Buchanan: "Fascinating Rhythm", **New Scientist**, N.157, p.20, 3 January, 1998.

1996 S. Goetinck: "They got the beat: researchers pinpoint a hidden pattern in apparently erratic rhythm of heart", **Dallas Morning News**, Discoveries Section, 30 September, 1996.

1996 I. Peterson: "Detecting a sound heartbeat", **Science News**, vol.150, p.196, 1996.
Featured also on **ScienceNewsOnline**, 28 September, 1996.