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| **Kurths, Jürgen Prof. Dr. rer. nat. habil. Dr. h.c. mult.** | |
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| **Gender** | male |
| **Institute address** | Institute of Physics, Humboldt-Universität zu Berlin (HU)  Newtonstr. 15, D-12489 Berlin and  Potsdam Institute for Climate Impact Research (PIK)  Telegraphenberg A 31, D-14473 Potsdam |
| **Phone** | +49 (0)331 288 2647 |
| **E-mail** | [juergen.kurths@pik-potsdam.de](mailto:juergen.kurths@pik-potsdam.de)  **https://www.pik-potsdam.de/members/kurths** |
| **Position and status** | Full professor for Nonlinear Dynamics (HU) and  Chair of Research Complexity Science (PIK) |

**Academic Training**

1971 Winkelmann Oberschule Seehausen/Altmark (Abitur, high-school diploma)

1971- 1975 University of Rostock, Diploma in Mathematics

1983 Dr.rer.nat. (PhD) at the Academy of Sciences, Berlin, Germany

1991 Habilitation: Theoretical Physics, University Rostock, Germany

**Professional Experience**

1975 – 1983 Scientist, Central Institute for solar-terrestrial Physics, Academy of Sciences, Berlin (East Germany)

1984 – 1990 Scientist, Central Institute for Astrophysics, Academy of Sciences, Potsdam (East Germany)

1990 – 1991 Project leader at the Institute for Astrophysics, Potsdam (Germany)

1992 – 1996 Director of the working group „Nonlinear Dynamics“ of the Max-Planck-Gesellschaft

1994 – 2008 Founding Director of the Interdisciplinary Centre “Dynamics of Complex Systems” at the University Potsdam

1994 – 2008 Full Professor (C4) for Theoretical Physics/Nonlinear Dynamics at the University Potsdam

Since 2008 Chair of Research Domain: Transdisciplinary Concepts and Methods, Potsdam Institute for Climate Impact Research

Since 2008 Full Professor for Nonlinear Dynamics, Institute of Physics, Humboldt-Universität zu Berlin

2009 - 2017 6th Century Chair for Complex Systems Biology (part time), King´s College, University of Aberdeen (UK)

**Research Interests**

An expert in the fields of theoretical physics, complex systems theory, nonlinear dynamics as well as applications to the Earth system, engineering systems (e.g. power grids), the human brain, and other systems which are characterized by a high degree of complexity and nonlinearity.

**Other Professional Service Activities**

1996 – 1999 Dean of the Faculty for Mathematics and Science at the University Potsdam

2000 – 2001 Vice-President for Research and International Relations, at the University Potsdam

1998 – 2010 Vice-Speaker of Sonderforschungsbereich 555 „Komplexe Nichtlineare Prozesse“ (DFG)

1999 – 2009 President of the Leibniz-Kolleg Potsdam

2000 – 2005 President of the European Geophysical Union for the Division Nonlinear Processes in Geophysics

2000 – 2004 Coordinator of the Research and Training Network “Control, Synchronization and Characterization of Spatially Extended Nonlinear Systems” (EU)

2000 – 2008 Coordinator of the Profilbereich “Komplexe Systeme” at the University Potsdam

2001 – 2007 Co-Coordinator of Schwerpunktprogramm 1114 “Time Series Analysis and Image Processing” (DFG)

2001 – 2006 Director of the Helmholtz-Institute for “Supercomputational Physics” (Excellence Programme Land Brandenburg)

Since 2001 Organizational Board “Experimental Chaos Conference”

2003 – 2006 Speaker of the Research Group “Conflicting Rules in

Cognitive Science” (DFG)

2003 – 2007 Coordinator of the Promotionskolleg “Mind and Brain Dynamics” (Excellence Programme Potsdam University)

2004 – 2009 Member of the steering committee of the Network of Excellence BIOSIM (EU)

2004 - 2016 Member of the Advisory Board of Fraunhofer Institute for Applied Polymer Research (Germany)

2005 – 2009 Vice-Chair of the Working Group 1 “Theoretical Considerations” in COST Action B27 “Electric Neuronal Oscillations and Cognition (ENOC)” (EU)

2007 – 2011 German representant of the COST Action NEUROMATH (EU)

2007 – 2011 Member of the steering committee of GoFORSYS, Centre for Systems Biology, University Potsdam

2010 - 2012 Member of Research Advisory Committee of the Institute for Global Strategies, Kanagawa, Japan

2010 - 2014 Member of the Advisory Board of the Funding Program for World-Leading Innovative R&D on Science and Technology – FIRST (Japan)

2010 - 2016 PI at Bernstein Center for Computational Neuroscience Berlin

2011 – 2018 Member of the Institute of Earth Sciences, University of Potsdam

2011 - 2020 Speaker of the International Research and Training Group (IRTG 1740): Dynamical and Transport Phenomena on Complex Networks (Germany and Brazil, DFG&FAPESP)

2012 Member of the Advisory Board of QANU Research Review Physics (Netherlands)

2012 - 2016 Member of the Advisory Board of the NSF Expedition Project on Understanding Climate Change (US)

Since 2013 Member of the Scientific Advisory Board of the Max Planck Institute for Physics of Complex Systems, Dresden (Germany)

2013 Member of the Expert Panel of the Estonian Research Council (Estonia)

2014 – 2018 Coordinator of the Megagrant Complex Climate Processes, Nizhny Novgorod (Russia)

Since 2014 Dean of the School of Engineering Sciences, Huazhong University of Science and Technology, Wuhan (China)

2016 - 2019 Member of the Advisory Board of the Helmholtz Center Alfred Wegener Institute for Polar Research (Germany)

Since 2016 Member of the Scientific Advisory Board of the Baltic Kant University, Kaliningrad (Russia)

2016-2017 Chairman of the Physical Society of Berlin

2016-2023 Elected Member of the Review Board, German Science Foundation (DFG)

Since 2018 Member of the Scientific Advisory Board of the Max Planck Institute for Molecular Physiology, Dortmund (Germany)

Since 2018 Member of the International Advisory Board of the Centre for Complex System Science, Huaqiao University, Xiamen (China)

Since 2019 Foreign Director of the Wuhan International Joint Laboratory on Optoelectronics

Since 2019 PI of the Megagrant Lympha-Sleep, Saratov State University, Russia

**Awards and Nominations**

2000 Fellow of the American Physical Society

2005 Alexander von Humboldt Research Award from CSIR (India)

2008 Honory Doctorate from Lobatschevsky University, Nizhny Novgorod, Russia

2010 Member of the Academia Europaea

2011 Honorary Professor, University Potsdam

2012 Honorary Professor, Southeast University, Nanjing

2012 Honorary Doctorate from State University, Saratov, Russia

2012 Member of the Makedonian Academy of Sciences and Arts

2013 Lewis Fry Richardson Medal of the European Geosciences Union

2015 Burgers Visiting Professor and Burgers Lecture, University of Maryland

2015 1000 Talents Award for Foreign Experts (China)

2016 Chapman Professor, University of Alaska, Fairbanks

2016 Honorary Professor, Northwestern Polytechnical University, Xi’an (China)

2017 Highly Cited Researcher (WoS) in Engineering

2017 Honorary Professor, King´s College, University of Aberdeen

2018 Honorary Professor, Tianjin University (China)

2018 Honorary Professor, Huaqiao University, Xiamen (China)

2018 Highly Cited Researcher (WoS) in Physics AND in Engineering (only person at all who got this in BOTH fields in 2018)

2019 Highly Cited Researcher (WoS) in Engineering

2019 Guest Professor, Chinese Academy of Science, Institute of Atmospheric Science

**Training of Young Scientists & Host of Fellows and Scholars**

* Supervision of more than 90 PhD students from 20 countries
* 14 Habilitations
* 50 of former students and fellows have got a tenured appointment in Germany, France, Russia, Spain, UK, USA, Brazil, Japan, China, India, Australia, Turkey, Bolivia, Bangladesh and Cameroon
* Hosted 5 Research Awardees and more than 30 Research Fellows of the Alexander-von-Humboldt Foundation, more than 35 Fellows and Students via DAAD and more than 50 Fellows and Students coming with their own grants

**Publications**

* > 650 papers in ISI journals
* > 42.000 citations (Web of Science) – (> 70.000 google scholar)
* h-index = 95 (Web of Science) – (120 in google scholar)
* among them 13 papers in Nature and its group, 6 in PNAS, 43 in Phys. Rev. Lett.
* 10 monographs, amongst them

1. Pikovsky, M. Rosenblum and J. Kurths: *Synchronization. A Universal Concept in Nonlinear Sciences*. Cambridge University Press, Nonlinear Science Series 12, 1st edition 2001, 1st paperback 2003, Italian translation 2003, Russian 2004, Japanese 2010, Chinese 2018; > 4500 citations.

**12 Important Papers**

* M.G. Rosenblum, A.S. Pikovsky, J. Kurths: *Phase Synchronization of Chaotic Oscillators*. Phys. Rev. Lett. 76(11), 1804-1807 (1996). (2029 citations)
* A.S. Pikovsky, J. Kurths: *Coherence Resonance in a Noise-Driven Excitable System*. Phys.Rev. Lett. 78(5), 775-778 (1997). (1253 citations)
* C. Schäfer, M.G. Rosenblum, J. Kurths, H.H. Abel: *Heartbeat synchronized with ventilation.* NATURE 392, 239-240 (1998). (529 citations)
* S. Boccaletti, J. Kurths, G. Osipov, C.S. Zhou: *The synchronization of chaotic systems*. Phys. Rep. 366 (1-2), 1-101 (2002). (1775 citations)
* C. Zhou, A. E. Motter, J. Kurths**, *Universality in the synchronization of weighted random networks.*** Phys. Rev. Lett. 96(3), 034101 (2006). (529 citations)
* Arenas, Diaz-Guilera, A., Kurths, J., Moreno, Y., Zhou, C.: *Synchronization in Complex Networks*, Phys. Rep. 469, 93-153 (2008). (1882 citations)
* J. F. Donges, Y. Zou, N. Marwan, J. Kurths, *The backbone of the climate network*, Europhys. Lett., 87, 48007 (2009). (220 citations)
* W. Yu, G. Chen, M. Gao, J. Kurths, *Second-order* *consensus* *for* *multiagent* *systems* with directed topologies and nonlinear dynamics, IEEE, Trans. Systems, Man and Cybernetics, 40, 881 (2010). (618 citations)
* P. Menck, J. Heitzig, N. Marwan, J. Kurths, *How basin stability complements the linear stability paradigm,* Nature Physics, 9, 89–92 (2013) (202 citations)
* Zou, Wei; Senthilkumar, D. V.; Nagao, Raphael; J. Kurths; *Restoration of rhythmicity in diffusively coupled dynamical networks*, Nature Communications, 6, 7709 (2015) (85 citations)
* Wang, Zhen; Jusup, Marko; Wang, Rui-Wu; J. Kurths, *Onymity promotes cooperation in social dilemma experiments,* SCIENCE ADVANCES  3, e1601444 (2017) ( 90 citations)
* N. Boers, B. Goswami, B. Bookhagen, B. Hoskins, J. Kurths, The global pattern of extreme rainfall teleconnections revealed by complex networks, Nature (2019)

**Invited Presentations**

Over 250 keynote, plenary and invited talks at international conferences.

**Organization of Conferences and Schools**

* Organization of 24 international Conferences
* Organization of 16 international Schools

**Scientific Funding**

Various projects funded by DFG, BMBF, VW-Foundation, EU, ESA, Leibniz Foundation, County Brandenburg (Germany), RSF, NSFC, NSF.

**Member of Board of Journals and Book Series**

2000-2011 Int. Journal Bifurcation & Chaos

Since 2012 Honory board member of Int. J. Bif.&Chaos

Since 2003 Springer Series of Complexity

Since 2003 Int. Journal of Complex Systems Research

* 1. CHAOS, Advisory Board

2007-2015 CHAOS, Editorial Board

2005-2016 Nonlinear Processes in Geophysics, Executive Editor

Since 2017 Nonlinear Processes in Geopphysics, Editorial Board

Since 2006 Discrete Dynamics in Nature and Society

2008-2013 Philosophical Transaction of the Royal Society A: Mathematical, Physical and Engineering Sciences

Since 2009 European Journal Physics, Special Topics

Since 2010 EICE

Since 2011 PLoS ONE

Since 2012 European Journal Physics, Nonlinear Biomedical Physics

2012-2016 Journal of Nonlinear Science

Since 2015 Europhysics Letters

Since 2016 CHAOS, Editor-in-Chief

Since 2019 Frontiers in Physics