

Curriculum vitae

Surname: Jonas
First name: Peter Michael
ORCID: 0000-0001-5001-4804
Date of birth: May 10, 1961
Nationality: German
Family: Married, two children

1. Research keywords

Synaptic transmission, synaptic plasticity, transmitter release, coupling between Ca²⁺ channels and release sensors, functional connectomics, GABAergic interneurons, parvalbumin, hippocampus, hippocampal granule cells, dendritic integration, axonal signaling, subcellular patch-clamp recording, nanophysiology, two-photon imaging, modelling, brain slices, *in vivo* recordings, place coding, learning and memory, pattern separation, pattern completion.

2. Career

Professional appointments

Since 2010 Full Professor and founder of a Neuroscience Research Cluster, Institute of Science and Technology (IST) Austria
1998 & 2003 Sabbaticals, Vollum Institute, OHSU, Portland, Oregon
1995–2010 Full Professor and Head of Department, University of Freiburg, Physiological Institute
1994–1995 Associate Professor, Technical University of Munich, Physiological Institute
1990–1994 Senior postdoc, Max Planck Institute for Medical Research, Department of Cell Physiology, Heidelberg (Prof. Bert Sakmann)
1988–1989 Postdoctoral fellow at the Physiological Institute, University of Giessen (Prof. Werner Vogel)

Education and training

1992 Habilitation, University of Heidelberg
1987 MD, summa cum laude, University of Giessen
1980–1986 Studies of Medicine, University of Giessen

3. Distinctions

Selected awards

2021 Peter Seeburg Integrative Neuroscience Prize of the Society of Neuroscience (100,000 \$)
2019 Elected member of EMBO 2018 Schrödinger Award of the Austrian Academy of Sciences (ÖAW)
2017 Elected Member of the Dana Alliance for Brain Initiatives (DABI)
2016 Wittgenstein Award of the Austrian Minister of Science, Research and Economy and the Austrian Science Fund (1.5 Mio €)
2015 Elected Member Academia Europaea
2011 David Smith Lecture, Oxford
2011 Adrian Lecture, Cambridge
2009 Adolf-Fick Award, Physicomedical Society, Würzburg

2008–2010 Internal Senior Fellow of the Freiburg Institute for Advanced Studies
2008 Elected Member of the Academy of Sciences, Heidelberg
2007 Tsungming Tu Award, National Science Council of Taiwan (75,000 \$)
2006 Szentagothai Memorial Lecture, University of California, Irvine
2006 Gottfried Wilhelm Leibniz Award, German Research Council (1.55 Mio €)
2002 Elected Member of the German National Academy of Sciences Leopoldina
1998 Max Planck Research Award for international cooperation
1997 Medinfar European Prize in Physiology, President of Portugal
1994 Heinz Maier Leibnitz Award, German minister for education and science
1992 Heisenberg Fellowship, German Research Council
1991 Franz Vogt Award, University of Giessen

Offers for chair positions

2010 Founder of a Neuroscience Research Cluster, IST Austria (accepted)
2006 Chair of Neurobiology, University of California, Irvine (declined)
1999 Chair of Physiology and Pharmacology, Biocenter Basel, succession of Prof. J.G. Nicholls (declined)
1999 Chair of Physiology, University of Heidelberg, succession of Prof. J.C. Rüegg (declined)

Selected invited lectures (2016–present)

2021 Symposium “Structural and functional presynaptic plasticity”, German Physiological Society
2021 Plenary Lecture, British Neuroscience Association
2020 “Dendrites 2020”, Heraklion, Crete (re-scheduled)
2020 Gordon Research Conference “Synaptic Transmission“, Il Ciocco, Italy (re-scheduled)
2020 Neural Circuits Dynamics Course, Venice, Italy (re-scheduled)
2020 Symposium “Brain plasticity Regulation and Modulation“, Weizmann Institute, Rehovot, Israel (re-scheduled)
2019 Gordon Research Conference “Excitatory Synapses and Brain Function“, keynote lecture, Manchester, NH, USA
2018 Dutch Neuroscience Meeting “Fast spiking interneurons in network signal processing in health or disease“, keynote lecture, Lunteren, Netherlands
2018 Caesar Conference “Missing links in neuroscience: Bridging scales in theory and experiment“, Bonn, Germany
2018 Leopoldina symposium “From synapses to circuits in health and disease“, keynote lecture, Berlin, Germany,
2018 20th International Neuroscience Winter Conference, Symposium “Hippocampal mossy fiber synapses: From structure to function“, Sölden, Austria
2018 Brain Rhythms in Health & Disease Symposium, MIT, Cambridge, MA, USA
2017 Congressi Stefano Franscini “The assembly and function of neuronal circuits“, Ascona, Switzerland
2017 Gordon Research Conference “Inhibition in the CNS“, keynote lecture,

Les Diablerets, Switzerland

2017 Blankenese conference “Synaptic plasticity versus stability“, Hamburg, Germany

2017 NWG Symposium “Tuning ion channels, myelin, and synapses for rapid axonal signaling“, Göttingen, Germany

2016 Opening symposium of Einstein Center for Neurosciences, Berlin, Germany

2016 IFM Colloquium 2016: „GABA signaling in the brain“, Paris, France

2016 OIST-JSPS symposium “Nanosopic Synaptic Functions“, Okinawa, Japan

2016 International Neuroscience Conference: Linking cellular properties to neuronal network dynamics, Marseille, France

2016 “Molecular Mechanisms in the Synapse: Experiments and Modeling“, Janelia Farm, Ashburn, VA, USA

2016 FENS Symposium “Modeling of synaptic transmission: the presynaptic side“, Copenhagen, Denmark

4. Teaching

Courses taught at IST Austria

Neuroscience track core course, 6 ECTS, Spring 2020/21

Neuroscience track core course, 6 ECTS, Spring 2019/20

Neuroscience track core course, 6 ECTS, Spring 2018/19

Neuroscience track core course, 6 ECTS, Spring 2017/18

Molecules, Cells, Models breadth course, 3 ECTS, Fall 2016/17

Neuroscience track core course, 6 ECTS, Spring 2015/16

Molecules, Cells, Models breadth course, 3 ECTS, Fall 2015/16

Teaching at University of Freiburg

Main lectures in vegetative physiology (respiration, heart, cardiovascular system, renal physiology) and neurophysiology (nerve, muscle, synapse, motor systems, auditory system, visual system); introductory and advanced seminars in physiology.

5. Selected service at IST Austria

2011–2019, 2021 Member of the Professorial Committee

2011, 2014–2017 Head of SSU Machine Shop

2011–2014 Head of the SSU Pre-Clinical Facility

2018–present Chair of the Equipment Investments Committee

2012–2018 Chair of the Staff Scientist Committee

2017/18 Chair of the Ethics Committee

2017–2019, 2020–present Member of the External Awards Committee

2017–2019 Member of the Lab Building 6 Planning Committee

6. Selected service to the scientific community

Editorships

2016–present Member of the Editorial Board of Neuron

2013 Top reviewer for The Journal of Neuroscience (with an extraordinary number of thoughtful reviews)

2007–present Member of the Board of Reviewing Editors of Science (~ 3 papers per week)
2001–2006 Member of the Editorial Board, The Journal of Neuroscience
1996–2003 Member of the Editorial Board, The Journal of Physiology (London)

Invited nominator for Gottfried-Wilhelm-Leibniz prize, Kyoto Prize, Tang Prize, Breakthrough Prize, Heinrich Wieland Prize, and Nobel Prize in Physiology or Medicine.

Coordinator of research teams

2011–present Founder of a Neuroscience Research Cluster, IST Austria
2008–2010 Coordinator of the Collaborative Research Center “Synaptic Mechanisms of Neuronal Network Function” (SFB 780, 16 projects)
1998–2001 Principal Investigator in a Human Frontiers Science Program Organization Grant, “Inhibitory synaptic signaling in interneuron networks” (with Gary Westbrook, Kunihiko Obata, and Bill Wisden)

Conference organization

2017 Co-chair, minisymposium “The Dentate Gyrus”, Society for Neuroscience meeting, Washington DC, USA
2017 15th meeting of the Austrian Neuroscience Association, Klosterneuburg, Austria (organizer, together with Sigismund Huck).
2014 Chair, Gordon Research Conference “Synaptic Transmission”
2012 Vice-Chair, Gordon Research Conference “Synaptic Transmission”
2005 President of the Jacques Monod conference “Synaptic communication in neuronal networks: From molecule to code”, Roscoff, France

Selected committees and boards

2019 Member of the ERC Starting grant evaluation panel LS5
2013 Member of the ERC Synergy grant evaluation panel
2004–2007 Member of the grant review panel (Fachkollegium) Neuroscience of the German Research Council

Peer review activities

Reviewer for Nature, Science, Cell, Neuron, Nature Neuroscience, Nature Medicine, Nature Communications, Nature Reviews Neuroscience, Cell Reports, ELife, Plos Biology, Plos Computational Biology, PNAS, The Journal of Neuroscience, and The Journal of Physiology (currently ~ 40 papers per year).

Reviewer for ERC, Humboldt Foundation, Leopoldina, and the German Research Council (currently ~ 10 applications per year)

7. Research grants

2017–2022 Wittgenstein Award of the FWF € 1.5 Mio

2017–2022 European Advanced Grant “Biophysics and circuit function of a giant cortical glutamatergic synapse” GIANTSYN € 2.67 Mio
2016–2019 FWF Doktoratskolleg “CCHD”
2011–2016 European Advanced Grant “Nanophysiology of fast-spiking, parvalbumin-expressing GABAergic interneurons” NANOPHYS € 2.5 Mio
2012–2015 FWF Stand Alone Grant € 490.000

8. Selected technology transfer, educational and outreach activities

Technology transfer: Software, Patents, Companies

The Jonas group has developed software for electrophysiology, in particular Stimfit (<https://stimfit.org>), a program package for high-level quantitative analysis of synaptic currents and potentials. The Jonas group has two ongoing collaborations with Leica Microsystems. In particular, the group has developed the micro slicer VT 1200, based on the previously developed principles of generation of planar vibrations (Geiger et al., 2002).

Educational and outreach activities

Presentation at “Wissensdurst” 2018

Lab tours for academic visitors, legislators (national and international), and representatives of industry (~5/year).

Contribution of the Jonas group to the Science Education day at IST Austria.

Preparation of several press releases related to recently published papers, as highlighted at the IST Austria webpage (<https://ist.ac.at/news-media/news>).

9. Student and postdoc alumni:

Student alumni

Henrik Alle (MD/PhD 2002), Privatdozent at the Charité Berlin; Yexica Aponte (PhD 2006), Chief of Neuronal Circuits and Behavior Unit, NIH, NIDA/IRP, Baltimore; Jörg Geiger (PhD 1996), Full Professor at Charité Berlin; Stefan Hallermann (PhD 2005), Full Professor at University of Leipzig; Duk-Su Koh, Associate Professor at University of Washington, Seattle; Chen-Chang Lien (MD/PhD 2003), Full Professor at National Yang-Ming University, Taipei; Christian Pawlu (MD/PhD 2004), Head of Corporate Development, Fresenius Kabi; Christoph Schmidt-Hieber (MD/PhD 2005), Junior Group Leader, Pasteur Institute.

Postdoc Alumni

Itaru Arai, Assistant Professor at Keio University, Tokyo; Marlene Bartos, Full Professor at University of Freiburg; Josef Bischofberger, Associate Professor at University of Basel; Jian Gan, Group leader University of Edinburgh, Scotland; Manfred Heckmann, Full Professor at University of Würzburg; Hua Hu, Associate Professor, University of Oslo, Norway; Marco Martina, Full Professor at Northwestern University, Chicago; Shi-Ming Weng, Professor at National Chung Cheng University, Chiayi.

10. Major collaborations

Scientific collaborations

Marlene Bartos, University of Freiburg, Germany – GABAergic interneurons in network oscillations;
Jozsef Csicsvari, IST Austria, Austria – Synaptic mechanisms of spatial coding;
Johann Danzl, IST Austria, Austria – Superresolution microscopy;
Michael Häusser, UCL, United Kingdom – Holographic optogenetics;
Hannah Monyer, Heidelberg, Germany – Single-cell RT-PCR and RNA-seq;
Ryuichi Shigemoto, IST Austria, Austria – Freeze fracture replica immunolabeling;
Angus Silver, UCL, United Kingdom – Biophysics of synaptic vesicle pools;
Thomas Südhof, Stanford, USA – Ca²⁺ sensors and vesicle pools;
Sam Young, University of Iowa / Max Planck Florida, USA – Synaptic Ca²⁺ sensors.

Industrial collaborations

Leica Microsystems, Nussloch, Germany and Vienna, Austria.

Publication record

Number of citations total: 24102, Hirsch index total: 73 (according to Google Scholar November 2021), Publications total: 90 original papers, 19 reviews, 11 book articles, and 1 Scholarpedia publication, Publications with 100 or more citations: 57, Publications with 1000 or more citations: 3 (November 2021).