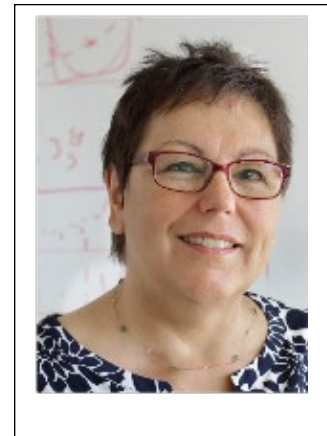## Prof. Dr. Sonja Grün

Institute for Advanced Simulations (IAS-6), and the JARA Institute Brain Structure-Function Relationships (INM-10), Jülich Research Center, Germany
Forschungszentrum Jülich GmbH
52425 Jülich, Germany

Birthday, place	04.01.1960, Sindelfingen, Deutschland
Telephone	+49-241 61 4748
Email	s.gruen@fz-juelich.de
www	http://www.csn.fz-juelich.de
ORCID	http://orcid.org/0000-0003-2829-2220

CURRENT RESEARCH INTERESTS AND EXPERTISE

Sonja Grün is director of the Institute for Advanced Simulations (IAS-6, Computational and Systems Neuroscience) and the JARA-Institut Brain structure-function relationships (INM-10) at Forschungszentrum Jülich, Germany, where she heads the Group on Statistical Neuroscience. She is also a full professor for Theoretical Systems Neurobiology at RWTH Aachen University, Germany. After receiving her diploma in physics (University of Tübingen) and her Dr. rer. nat. in physics (University of Bochum), she was a post-doc at the Hebrew University, Jerusalem, (Israel), where she performed multiple single neuron recordings in behaving monkeys. Then she returned to computational neuroscience to develop analysis tools for multi-electrode recordings, first at the Max-Planck Institute for Brain Research in Frankfurt/Main, Germany, and then as an Assistant Professor at the Freie Universität in Berlin. IN 2003 she received her habilitation in neurobiology and biophysics (University of Freiburg, Germany). In 2006 she moved to RIKEN Brain Science Institute Wako-Shi, Japan and led the Statistical Neuroscience lab, before she joined Forschungszentrum Jülich in 2011 and became full professor at Faculty I at RWTH Aachen University. In 2018 she was appointed director of INM-6 (in 2024 consolidated with IAS-6 to the joint institution "IAS-6, Computational and Systems Neuroscience") and INM-10. Her work focuses on the development of analysis strategies and tools that uncover concerted activity in massively parallel electrophysiological recordings from cortex, which led to an additional focus on research data management. Her research interests include:

- Dynamical interactions in the brain network relevant for behavior and cognition.
- Signatures of network processing in massively parallel experimental recordings.
- Development of statistical data analysis tools for detecting interactions in the brain network
- Development of open source data analysis software Elephant (RRID:SCR_003833)
- Concepts and implementation of collaborative, reproducible digital workflows
- Closing the loop between neural network models and experimental data.
- Interpretation of system dynamics through construction of theoretical (biophysical and functional) models.

SCIENTIFIC VITA

since 2018	Director of the Institute of Neuroscience and Medicine (INM-6), in 2024 consolidated with IAS-6 to the joint institution "IAS-6, Computational and Systems Neuroscience", and the JARA Institute Brain Structure-Function Relationships (INM-10), Jülich Research Center, Germany
since 2018	Professor (W3) for Theoretical Systems Neurobiology, RWTH Aachen University, Germany
2011-2018	Vice director of Institute of Neuroscience and Medicine (INM-6), Jülich Research Center, Germany
since 2011	Group Leader, Institute of Neuroscience and Medicine (INM-6), Lab for Statistical Neuroscience, Jülich Research Center, Germany
2011-2018	Professor (W2) for Theoretical Systems Neurobiology, RWTH Aachen University, Germany
2006-2011	Unit and later Team Leader, Unit of Statistical Neuroscience, RIKEN Brain Science Institute, Wako-City, Japan
2004-2004	Assistant-Professor (C2) for Neuroinformatics/Theoretical Neuroscience, Freie Univ. Berlin, Germany
2003-2011	'Privatdozentin' (lecturer) for Neurobiology and Biophysics, Albert-Ludwigs Univ., Freiburg, Germany
2003	Habilitation and venia legendi in 'Neurobiology and Biophysics', Albert-Ludwigs Univ., Freiburg, Germany
2002-2006	'Forschungsdozentin' (equiv. junior professor) for Neuroinformatics/ Theoretical Neuroscience, Freie Univ. Berlin, Germany

1998-2002	Senior Fellow, Max-Planck Inst. for Brain Research, Frankfurt, Germany
1995-1997	Postdoctoral Research Fellow, Dept. of Physiology Hebrew Univ., Jerusalem, Israel
1996	Dr. rer. nat. obtained from the Faculty of Astronomy and Physics at the Ruhr-Univ., Bochum, Germany. Ph.D. thesis: 'Unitary Joint-Events in Multiple-Neuron Spiking Activity: Detection, Significance, and Interpretation'. Supervisors: Prof. A. Aertsen and Prof. C. von der Malsburg
1991	Diploma in Physics, obtained at the Eberhard-Karls Univ., Tübingen, Germany. Master thesis: 'Neuronal Model of binaural Interaction in the auditory system in the Barn Owl' at the Max-Planck Inst. for Biological Cybernetics, Tübingen, Germany. Supervisors: Dr. A. Aertsen and Dr. H. Wagner
1984-1991	Study of Physics and Psychology at the Eberhard-Karls Univ., Tübingen, Germany
1980-1983	Additional schooling towards matriculation standard in Sindelfingen Germany ('Zweiter Bildungsweg')
1977-1980	Training as an electronician at IBM in Sindelfingen, German

SCIENTIFIC ACTIVITIES, HONORS AND AWARDS

Since 2023	Member of review panel for the Young Excellent Scientist Program (YESP) of Forschungszentrum Jülich
2023-2024	Deputy Scientific Coordinator of CASA (Center for Advanced Simulation and Analytics), Jülich Research Centre
since 2022	Member of Scientific Advisory Board of the Donders Institute for Brain, Cognition and Behaviour, the Netherlands
since 2021	Member of the program board of the "Center for Advanced Simulation and Analytics (CASA)" at the Jülich Research Center
2021-2023	Member of the Commission for Ethics in Research at Jülich Research Center
2020-2021	Member of the German Research Foundation (DFG) Review Board „Experimentelle und Theoretische Netzwerk- Neurowissenschaften"
since 2020	Member of the NFDI-Neuro Initiative
2019-2020	Acting co-head of Helmholtz Metadata Collaboration (HMC) Hub "Information"
2019-2023	Speaker of Section "Computational Neuroscience'' of the German Neuroscience Society (NWG)
since 2015	Member of Advisory Board of the Bernstein Center for Computational Neuroscience, Berlin, Germany
2014-2016	Guest Professor at Osaka University, Japan
since 2011	Visiting Scientist, RIKEN Brain Science Institute, Wako-City, Japan
2009	Letter of Appreciation by the head of RIKEN for excellent research achievements
2004	Founding member of the Bernstein Center for Computational Neuroscience, Berlin, Germany
2002-2006	Forschungsdozentur' for Neuroinformatics/Theoretical Neuroscience by the Stifterverband für die Deutsche Wissenschaft
1996-1997	Postdoctoral Research Fellowship of the Minerva Foundation

5 SELECTED PUBLICATIONS
h index 44, overall citations 7208 (Google Scholar), >90 peer-reviewed journal articles

1. Chen X., Morales-Gregorio A., Sprenger J., Kleinjohann A., Sridhar S., van Albada S., Grün S., Roelfsema P. (2022) 1024-channel electrophysiological recordings in macaque V1 and V4 during resting state. Scientific Data. DOI: 10.1038/s41597-022-01180-1

2. Dahmen D., Layer M., Deutz L., Dabrowska PA., Voges N., von Papen M., Brochier T., Riehle A., Diesmann M., Grün S., Helias M. (2022) Global organization of neuronal activity only requires unstructured local connectivity. eLife 2022;11:e68422. DOI: 10.7554/eLife.68422

3. Grün S., Li J., McNaughton B., Petersen C., McCormick D., Robson D., Buzsáki G., Harris K., Sejnowski T., Mrsic-Flogel T., Lindén H., Roland PE. (2022) Emerging principles of spacetime in brains: Meeting report on spatial neurodynamics. Neuron 110:12, p1894-1988. DOI: 10.1016/j.neuron.2022.05.18

4. Ito J., Joana C., Yamane Y., Fujita I., Tamura H., Maldonado PE., Grün S. (2022) Latency shortening with enhanced sparseness and responsiveness in V1 during active visual sensing. Scientific Report 12, 6021. DOI: 10.1038/s41598-022-09405-4

5. Stella A., Bouss P., Palm G., Grün S. (2022) Comparing surrogates to evaluate precisely timed higher-order spike correlations. eNeuro DOI: 10.1523/ENEURO.0505-21.2022

FUNDING, selected