1. Personal information
Born 17. October 1966 in Uster, Switzerland. Married, two children (Lea: 1995, Anja: 1999) Google Scholar ID: zMrvXsAAAAAJ

2. Education.

1972-1978	Elementary school, Dübendorf
1978-1985	College ("Gymnasium") & Matura diploma (type B), Zurich
1985-1991	Study and Diploma of Natural Sciences (Biology) at the Swiss Federal Institute of Technology (ETH), Zurich
May 1991	Ph.D. student and research assistant with Prof. D. Lehmann at the Dept. of Neurology, University Hospital, Zurich
June 1995	Degree of Doctor of Natural Sciences at the Swiss Federal Institute of Technology (ETH), Zurich
March 2022	Master of Arts in Philosophy at the University of Bern

3. Employment history including current position

1994-1998	Employed as research scientist at the KEY Institute for Brain-Mind research, at the University Hospital of Psychiatry, Zurich
Since 1999	Senior research assistant at the University Hospital of Psychiatry, Bern
Jun.2005	Habilitation (Privatdozent) at the Medical Faculty of the University of Bern
Dec. 2011	Associate Professor at the Medical Faculty of the University of Bern

4. Institutional responsibilities

Head of the EEG laboratories of the University Hospital of Psychiatry Bern
Visiting professor at the University of Geneva

5. Approved research projects

As principal investigator:

1. Mikrozustände des Gehirns im Verlauf der Entwicklung bei normalen Kindern und Kindern mit erhöhter Vulnerabilität für spätere psychische Erkrankungen (SNF Nr. 823A-053460 (Post-Doc Fellowship, 1.4.1999 – 31.3.2000, 70'170.- CHF)
2. Lokalization synchroner Hirnaktivität mit kombiniertem EEG und fMRI. (SNF Nr. 320000-108321, with C. Boesch and T. Dierks, 1.5.06 – 30.4.09, 235'426.- CHF)
3. The 16th world congress of the international society for brain electromagnetic topography (ISBET 2005) (SNF Nr. IB71B0-111320, 1.10.2005 – 1.11.2005, 4500.- CHF)
4. Resting states of the brain and state dependent information processing in health and disease (SNF Nr. 136249, Sinergia, with P. Achermann, D. Brandeis and L. Jäncke, 1.1.2012 – 31.12.2014, 950'442.- CHF)

As co-investigator

1. Man-Machine Communication through Brain Computer Interface (SNF Nr. 2153-067852, PI: T. Ebrahimi, EPFL, 1.10.2002 – 30.4.2005, 322,323.- CHF.)
2. Does slow wave sleep strengthen the memory traces of both consciously and nonconsciously encoded episodes? (SNF Nr. K-13K1-119953, PI: K. Henke, 1.5.08 – 30.4.11, 502'939.- CHF)
3. Imaging large scale neuronal networks in epilepsy. (SNF Nr. 33CM30-124089, PI: Margitta Seeck, 1.1.2009-31.12.2011, 1'608'515.- CHF)
4. Mental Imagery and Perceptual Learning. (SNF Nr. 135303, PI: F. Mast, 1.9.2011-31.8.2014, 321,732.- CHF)
5. Testing Theories of Meaning Activation: Masked and Nonmasked Priming in Ambiguity (SNF Nr. 100014_143508, PI: Doris Eckstein, 1.10.2012-31.9.2015, 255,611.- CHF)

6. Supervision of junior researchers at graduate and postgraduate level

Main supervisor for the PhD of: Dr. M. Stein, Dr. K. Jann, Dr. L. Diaz, Dr. A Bänninger, Dr. K. Rieger, Dr. M. Kottlow, Dr. N. Meier, Dr. E. Studer, S. Diezig (ongoing)

7. Teaching activities (summary information)

- • Regular block courses on EEG methodology
- • Seminars on the master level on selected topics of neuroscience.

8. Memberships in panels, boards, etc., and individual scientific reviewing activities

Editorial board member of Brain Topography, EEG and clinical Neuroscience, Brain Connectivity, reviewer for many journals and granting agencies

9. Active memberships in scientific societies, fellowships in renowned academies

Past president of ISBET (International Society for Brain Electromagnetic Topography), Board member of ECNS (EEG and Clinical Neuroscience), member of IPEG, Society for Mind-Matter Research, SSN, SSBP and others

10. Organization of conferences
- • ISBET Conference 1997 (~ 150 participants)
- • ISBET Conference 2005 (~ 120 participants)
- • Resting state brain connectivity and state-dependent information processing in health and disease on the Monte Verita, 2014 (~ 60 participants)
- • BaCI 2018 (~ 200 participants)

11. Prizes, awards, fellowships

1999-2000   Post-doctoral fellowship of the Swiss National Foundation in Havana (Prof. P. Valdes) and New York (Prof. E.R. John)

Nov. 2009   Winner of the Theodor-Kocher Prize of the University of Bern for excellent young academics (50'000 SFr.)

12. Publications: Currently over 145 publications in international peer-reviewed journals (google scholar link), h-index 53.

Mayor scientific achievements

A main focus of my interest is the spontaneous organization of brain information processing networks at rest. The phenomenology of multichannel EEG data, augmented with knowledge about the physics of EEG, suggest that phase-locking of large patches of cortical tissue (so called microstates) represent gating mechanisms that are important for the formation of these networks. At the same time, the state of these networks is likely to bias the brain's response to incoming information in particular ways. In the past 20 years, I have been intensively collaborating with many international laboratories to empirically elucidate the functional role of these microstates, I have continued to develop the theoretical framework behind the microstate methodology, and I have developed, distributed and taught open-source software solutions for the analysis of EEG microstates.

I have been particularly interested in elucidating the relationship of EEG resting states to psychiatric disorders, as abnormalities in brain functional resting states may systematically bias the processing of incoming information in a dysfunctional way. My main areas of interest have been schizophrenia and dementia. In both domains, and in collaboration with large-scale efforts to collect extensive data, I was crucially involved in producing a series of papers that link symptoms of psychosis and dementia to the fine-grain temporal organization of brain electric activity.

Finally, and most relevant for the present project, I have been the leader of a series of projects that could successfully show that this fine-grain organization of brain electric activity that seems so important for a healthy brain's information processing capacity can be systematically modified in an intended direction by using multichannel EEG neurofeedback techniques that specifically target the co-activation of large scale neurocognitive modules.