

Rune W. Berg

Associate Professor

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<http://berg-lab.net/>

PhD

University of California
San Diego (Biophysics)

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Frederikskaj 2K, 4TV
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Current age:

43
(Date of birth: Oct 8,
1974)

Children:

2

Summary

I investigate neuronal networks with an emphasis on the motor system. My lab combines quantitative approaches of mathematics and physics with experiments using electrophysiology, genetics and other biological tools to better understand the nervous system especially the motor system. With my PhD in neurophysics (Dept. of physics) and many years of successful cross-disciplinary approaches my goal is to use this to solve the biggest puzzles in the area of motor research as well as consolidate this unique quantitative lab in Denmark.

Education

1997–2003 **Ph.D.** Biophysics/Neurophysics University of California San Diego
Advisor: David Kleinfeld (<https://neurophysics.ucsd.edu/>)

1993–1998 **Cand. Scient.** Biophysics Niels Bohr Institute, University of Copenhagen

Experience

2013–Now **University of Copenhagen** Denmark
Associate professor
Established my lab at Department of Neuroscience

2004–2013 **University of Copenhagen** Denmark
Post doc/research associate (Seniorforsker)
First post doc with Jorn Hounsgaard and then independent research associate

2007 **Taipei veterans general hospital** Taiwan
Visiting scientist (6 months)
Spinal cord injury

2016 **University of California San Francisco** USA
Visiting scientist at the Ganguly lab (<http://gangulylab.org/>) for 1 month
Brainstem control of locomotion

Special training

2013 **Winter school: Complex systems modeling and networks** NECSI, MIT, Massachusetts

2008 **Summer school: Neuroinformatics** MBL, Woods hole, Massachusetts.

2008 **Workshop "Stochastic differential equations in biology"** Middelfart, Denmark.

2004 **Workshop "Construction of the brain"** Kristineberg marine station, Sweden.

2001 **Workshop in Neurophysics at KITP (Kavli Inst. for theoretical physics)** Santa Barbara, California.

Achievements

2016 **ERC Consolidator grant in Neuroscience (reserve list status)** European Research Council
Project score: A (Top 15 in Europe. First Dane to receive an "A")

2015 **Invited for Interview ERC Consolidator grant in Neuroscience** European Research Council
Final Project score: B

2011 **Sapere Aude elite research leader** Danish Research Council
Det frie forskningsrad - Sygdom og sundhed

2008 **Hallas--Møller fellow** Novonordisk foundation
Personal grant of 5 million DKK

2013 **Technological achievement:** Designed the Berg64-probe together with Neuronexus
Now sold at Neuronexus: <https://neuronexus.com/custom-design/dr-rune-berg>

Academic activities

Supervision: 3 Post docs, 4 PhD student, 12+ M.S./B.S. students. **Conferences organized:** 2. **Grants awarded:** 7. Multiple international and national collaborations. 10+ invitations as a scientific conference speaker. **Ad hoc reviewer** for international journals, e.g. Nature Communications, eLIFE, Physical Review X and Journal of Neuroscience. Collected 140 Publons (reviewer points) see <https://publons.com/a/13694/>

Bibliometric summary

Peer review: 27 publication in internationally renowned journals e.g. eLIFE, Science, Journal of Neuroscience. **Citations (google scholar):** 1450+ citations, H-index: 14, i10-index: 19.

Selected papers:

- 2017 **Berg, RW** [Front Neural Circuits](#) Neuronal diversity in spinal motor circuits: Greater than sum of its parts
- 2017 **Berg, RW, MT Stauning, JB Sorensen, H Jahnsen,** [Physical Review X](#) Comment on 'Penetration of action potentials during collision in the median and lateral giant axons of invertebrates'
- 2016 **Petersen, PC and RW Berg,** [eLIFE](#) "Lognormal firing rate distribution reveals prominent fluctuation-driven regime in spinal motor networks"
- 2015 **Vestergaard, M and RW Berg,** [J. Neurosci](#) "Divisive gain modulation of motoneurons by inhibition optimizes muscular control"
- 2007 **RW Berg, A Alaburda and J Hounsgaard,** [Science](#) "Balanced inhibition and excitation drives spike activity in spinal half-centers"

External Collaborators

- **Susanne Ditlevsen** Professor, Department of Mathematical sciences, University of Copenhagen
Nature of collaboration: meet regularly regarding quantitative/theoretical neuroscience and data analysis.
- **Anpan Han** Associate Professor, Danchip, DTU
Nature of collaboration: Dr. Han is an expert in nanotechnology and nano-fabrication, which we will use in the development of a new generation of electrodes made of diamond. I will use these electrodes for the groundbreaking research.
- **Alex Roxin** Associate Professor, Centre recerca matematica, Barcelona, Spain
Nature of collaboration: We are writing an authoritative review with Dr. Roxin about the genesis of rhythmic activity in neuronal networks. Dr. Roxin is a world leading computational neuroscientist with a specialty in population oscillations.