



Prof. Dr. Jan Kremers

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Prof. Dr. Jan Kremers

CV

Summary

I am a biologist with a background in systems' neurobiology, electrophysiology, ophthalmology and psychophysics. I have had experience with research in academia, non-profit research institutes, and commercial research institutions. Currently, I am fellow in the Excellence Program of the Hertie-Foundation and work at the Department of Ophthalmology of the University of Erlangen-Nuremberg where a Professorship in Experimental Ophthalmology will be created with external funding, that I have acquired. I have a honorary professorship from the University of Tübingen and am Honorary Visiting Professor Visual Neurosciences at the School of Life Sciences of the University of Bradford (UK). My strengths include the ability to be innovative and to understand structures. Therefore, I easily can understand complex data sets. Furthermore, I have the capacity to build up an efficient way to work in large organizations. As a result I am able to work in a multidisciplinary environment. Furthermore, in the past I have proven to be capable to lead a group of collaborators in a pleasant and fruitful atmosphere.

Experience

2005 – now Dept. Of Ophthalmology, University of Erlangen-Nuremberg, Germany.

Professor for experimental Ophthalmology

- Fellow in the Excellence Program of the Hertie-Foundation
- Head of the animal electrophysiology lab
- Research on the functional characterization of retinal and neurological diseases using electrophysiological techniques to measure responses in the visual system in rodents and human subjects.
- Independent acquisition of external funding of the professorship for five years.
- Cofounder of Rhenovia Pharma with seat in Mulhouse, France.
- December 2005: Offer of a Chair in Optometry at the School of Life Sciences of the University of Bradford (UK).
- Since April 2006: Honorary Visiting Professor at the School of Life Sciences of the University of Bradford (UK).

2003-2005 Novartis Institutes for Biomedical Research, Basel, Switzerland and Strasbourg; France

Labhead

- Task: electrophysiological measurements (Multifocal electroretinography and chronic visual evoked potentials) and ophthalmological examinations (ophthalmoscopy and slit lamp) in monkeys and rabbits.
- Established new electrophysiological techniques for chronic recordings in rabbits.
- Led a group of 5 technicians.
- Obtained a professorship at the medical faculty of the University of Tübingen.
- Edited a book “The Primate Visual System; A comparative approach” published in April 2005 by John Wiley and Sons.

1999-2003, German Research Council, Bonn, Germany

Heisenberg fellow

- A Heisenberg fellowship is given to outstanding young scientists (about 100 fellowships are given per year for all scientific fields and throughout Germany). The fellowship was given twice (each after a review process).
- Headed a lab with 6 to 9 persons (technicians, post-graduates and post-docs).
- Build a set up for electrophysiological recordings and anatomical characterizations in *in vitro* preparations of the retina.
- Set up special courses in Neurobiology.
- Published about 30 publications mainly in peer-reviewed journals.
- Two prizes were awarded for scientific achievements.

1992-1999, University of Tübingen Eye Hospital, Tübingen, Germany

Scientific employee; head of the retinal physiology lab

- Established a new lab for single cell recordings in monkey brains.
- Developed a new stimulus technique for measuring photoreceptor dynamics non-invasively and for diagnosing retinal dysfunctions.
- Teaching in general physiology, ophthalmology and neurobiology.
- Published about 20 manuscripts mainly in peer reviewed journals.
- Obtained *venia legendi* in Physiology from the University of Tübingen.

1989-1992, Max Planck Institute for biophysical Chemistry, Göttingen, Germany

Post Doctoral fellow (Max Planck stipend and through a grant of the German Research Council)

- Task: single cell recordings in the retina of monkeys and psychophysical measurements in human observers at the lab of Prof. B.B. Lee (Dept. of Neurobiology; head Prof. O.D. Creutzfeldt).
- Published about 7 manuscripts mainly in peer review journals.

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Qualifications Profile

Core competencies

- Experience with heading a group of people (doctorate students, post-docs, guest scientists and technicians) taking into account the skills of each collaborator.
- Ability to coordinate different projects that run in parallel.
- Organizational skills (e.g. in building up laboratories and animal facilities, including the acquisition of required resources and equipment, the development of special soft-ware).
- Collaborations with basic and clinical scientists world-wide. Experience with research in Germany, Switzerland, France, the Netherlands, UK, USA and Brazil.
- Ability to conduct basic and applied scientific research in an academic and in an industrial environment.
- Communicational skills (in the acquisition of external funds and in the presentation of data and results).
- Experience with private companies (e.g. as a cofounder of Rhenovia Pharma).

Scientific projects

- Single cell recordings *in vivo* from the retina and brain of mammals (mainly primates) under visual stimulation.
- The development of innovative electroretinographic techniques.
- Optical techniques (such as ultra high resolution optical coherence tomography and Fundusreflectometry) with human subjects and animals.
- Intraretinal electroretinography in primates.
- Non-invasive electroretinography in animals, and human subjects (healthy subjects and patients).
- Psychophysical measurements in human subjects.
- Visual evoked potentials in human subjects and animals (chronic preparation).
- Ophthalmological examinations.
- Intracellular injections of dyes in the *ex vivo* preparations of the retina.
- Computational methods, the development of models and the conduction of simulations.
- Biomechanical techniques.
- Animal Physiology and Zoology

Teaching experiences

- Teaching experiences since 1979.
- Main courses in Zoology, Physiology, Neurobiology and Electrophysiology.

Acquisition of externals funds

- Run a lab on a budget (about 1 million Euro annually) that nearly completely relied on external funds (acquired from the German Research Council, The German Academic Exchange, German Ministry of Education and Research, The Ministry of Science of Baden Württemberg, The medical Faculty of the University of Tübingen, Brazilian Research organizations)

Reviewing activities

- Reviewer for 13 different scientific journals
- Reviewer for 5 different funding organizations (in the UK, USA and for the EC)

Additional activities

- Responsible for animal facilities with monkeys, rats, mice, chicken and fish.
- Experience with computer programming and commercially available software (data-analysis; graphics; layout; document preparation; slide presentations).
- Consulting activities for research groups and companies
- Editorial Board member of 'Psychology and Neuroscience'.

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Scientific Projects

Scientific projects

- Electroretinographical recordings in mice (wildtype and animal models for glaucoma).
- Electroretinographical correlations of post-receptoral pathways in healthy subjects and patients.
- Ultra high resolution optical coherence tomography with mice.
- The processing of spatial and temporal stimuli in the retina and the lateral geniculate nucleus.
- The Interaction between rod and cone signals in the visual system.
- The topography of cones in the retina.
- The change of cone numbers and cone dynamics caused by retinal disorders.
- The evolution and ecology of primate colour vision.
- Adaptation of retinal cone signals.
- Intracellular recordings and anatomical characterisation of retinal neurons.
- Multifocal electroretinograms in normal macaques and macaques with experimentally induced glaucoma.
- Visual evoked potentials and electroretinograms in rabbits.
- The biomechanics of food uptake in the pike (*Esox lucius*). (University of Wageningen).
- Electronic registration of food uptake by aphids (University of Wageningen).
- A mathematical description of the human knee joint (University of Nijmegen).
- A description of the position of a hip prosthesis in a human femur (University of Nijmegen).
- Photochemical damage of the retina (Doctoral thesis).
- Physiological recordings of macaque retinal ganglion cell activity and its correlation with human visual perception (Post-Doc at the MPI Göttingen).

Scientific techniques

- Extracellular recordings from neurons in the retina and lateral geniculate nucleus of primates.
- Noninvasive electroretinographical recordings with human subjects (normals and patients) and in non-human primates.
- Psychophysical detection threshold measurements.
- Computational methods.
- Intracellular injections in retinal ganglion cells.
- Invasive intraretinal electrophysiological recordings in the retina.
- Optical techniques: Optical coherence tomography; fundusreflectometry.
- Ophthalmological examinations.
- Visual evoked potentials in rabbits.