

## Profile

### Prof. Dr. rer. nat. habil. Karsten König (Koenig)



Karsten König is C4 Full Professor at the Faculty of Physics and Mechatronics, Department of Biophotonics and Laser Technology (BLT) at the Saarland University in Saarbruecken/Germany and President/CEO of the spin-off company JenLab GmbH and UDF GmbH.

He gained the PhD degree in physics (1989) as well as the habilitation degree in cell biology from the University Jena. His major research fields include multiphoton microscopy and tomography, laser tweezers, femtosecond laser nanoprocessing, and laser-based stem cell research.

#### Scientific Career

1978	Abitur (High School), Königs-Wusterhausen near Berlin
1978-80	Navy
1980	certification as skilled professional driver (“Berufskraftfahrer”)
1980-85	study of physics at the universities Rostock and Jena (East-Germany)
1985	diploma thesis (physics) on photodynamic cancer therapy
1985-89	scientific assistant at the Dept. of Physics at the University Jena
1988	visiting scientist, Academy of Sciences, Minsk
1989	PhD thesis on optical cancer diagnosis and picosecond fluorescence lifetime microscopy (physics, Dr. rer. nat., “magna cum laude“)
1989	escape from East Germany
1990-93	PostDoc, Institute for Lasertechnologies in Medicine (ILM), University Ulm
Sept. 93-94	PostDoc, Beckman Laser Institute & Medical Clinic, UCI, Irvine, California
1995	scientist, Institute for Molecular Biotechnology (IMB), Jena
1996	scientist, Institute of Anatomy II (cell biology, histology), University Jena
1996	Habilitation in cell biology (Dr. rer. nat. habil.)
1997	Private Lecturer (Privatdozent), University Jena
1997	visiting scientist, MIT, Cambridge, USA
1999	Foundation of the spin-off company JenLab GmbH ( <a href="http://www.jenlab.de">www.jenlab.de</a> )
2001	Director Center of Lasermicroscopy, Faculty of Medicine, University Jena
since 2002	CEO JenLab GmbH
2004-2009	Head of the Dept. Microsystems/Laser Medicine at the Fraunhofer IBMT
since 2004	C4 Professor, Saarland University, Faculty of Physics and Mechatronics, Head of the Department Microsensors and Assembling Technology, since 2011 Head of the new Department Biophotonics and Laser Technology
Oct 2010-11	visiting scientist, Beckman Laser Institute, UCI, Irvine, California

### **Prizes and Awards**

1993	Visiting Fellowship Award (DFG), Beckman Laser Institute, UCI, USA
1998	Research Award of the State of Thuringia
1999	Business Award of the State of Thuringia
2000	Research Award of the International Society of Histochemistry ( <i>Feulgenpreis</i> )
2000	Research Award of the University of Bochum ( <i>Kortum Motivationspreis</i> )
2003	Innovation Prize of the German Ministry of Research and Education (BMBF)
2005	<i>Pascal Rol Award</i> (SPIE)
2005	Award of the International Society of Skin Pharmacology and Physiology
2005	Award <i>Technology for the Human Welfare (Technik für den Menschen)</i> of the Fraunhofer Society
2010	Leibinger Innovation Award
2011	Prism Award for the best Photonics Product in Life Sciences (SPIE)

### **Membership of Editorial/Advisory Boards**

International Society of Scanning Microscopy  
Journal of Biophotonics  
Journal of Fluorescence  
Journal of Cellular and Molecular Biology (-2003)  
German Society for Laser Medicine  
WLT (German Scientific Society of Laser Technology:  
Wissenschaftliche Gesellschaft für Lasertechnik e.V.)

### **Membership of Professional Organizations / Societies**

*President* Lions Club St. Ingbert  
*Treasurer and Co-Founder* of the Society *Special Olympics Germany, Saarland*  
*Past Vice President* and Member of the WLT  
Deutsche Gesellschaft für Biophysik e.V.  
Deutsche Physikalische Gesellschaft (German Society of Physics)  
Deutscher Alpenverein (DAV)  
International Society for Optical Engineering (SPIE)  
NanoBioNet, Saarland/Rheinland-Pfalz  
Medways, Thuringia  
OphthalmoNet, Thuringia  
OptoNet e.V., Thuringia  
Saarbruecker Kanu Club (SKC)

### **Assessor of Grants**

Cancer Research Campaign  
European Commission  
German Cancer Association (Deutsche Krebshilfe)  
German Federal State Baden-Württemberg  
German Science Foundation (DFG)  
German Ministry of Research and Education (BMBF)  
Irish Science Foundation  
MIT  
Schweizer Nationalfond  
Welcome Trust

## **Referee of International Journals**

Biophysical Journal  
Journal of Applied Physics  
Journal of Biomedical Optics  
Journal of Biophotonics  
Journal of Cellular and Molecular Biology  
Journal of Fluorescence  
Journal of Microscopy  
Journal of Photochemistry and Photobiology  
Medical Laser Application  
Microscopy Research and Technique  
Nature Biotechnology  
Nature Methods  
Optics Express  
Optics Letters  
Phys Rev Lett

## **Advisory/Steering/Organizing Committees of International Conferences**

Principal Scientific Organizer. Third World Conference on Cellular and Molecular Biology, Jena, 2000, with 8 Nobel Prize winners  
Principal organizer: Focus on Microscopy FOM2005 and Ernst Abbe Symposium, Jena,  
Organizer: FOM2006 (Perth), FOM2007 (Valencia), FOM2008 (Osaka), FOM2009 (Krakow), FOM2010 (Shanghai), FOM2011 (Konstanz), FOM2012 (Singapore)  
Principal Organizer: International Workshop on Modern Lasermicroscopy, Saarbrücken, (FLIM2005-FLIM2012)

## **Industry Experience**

1999 Co-Foundation of the company JenLab GmbH  
1999-2001 CFO JenLab GmbH  
since 2002 CEO JenLab GmbH

## **Publications**

>150 papers in refereed journals, e.g. *Nature* (>90 papers as first author)  
14 book chapters  
>100 papers in refereed proceedings  
>200 talks on international conferences/workshops  
22 patents

## **Five selected publications**

1. K. König, H. Liang, MW. Berns, B. Tromberg. Cell damage by near-IR microbeams. *Nature*. 377 (1995) 20-21.
2. K. König, I. Riemann, P. Fischer, K.J. Halhuber. Intracellular nanosurgery with near infrared femtosecond laser pulses. *Cell. Mol. Biol.* 45 (1999) 195-201.
3. K. König, O. Krauss, I. Riemann. Intratissue surgery with 80 MHz nanojoule femtosecond laser pulses in the near infrared. *Optics Express*. 10 (2002) 171-176.
4. U. Tirlapur, K. König. Targeted transfection of cells by femtosecond near-infrared laser pulses. *Nature*. 418 (2002) 290-291.
5. K. König et al. Applications of multiphoton tomographs and femtosecond laser nano-processing microscopes in drug delivery research. *Advanced Drug Delivery Review*. 63(2011)388-404.

## **Hobbys**

### *Alpinism*

- 1985 Elbrus 5643 m, Caucasus, Soviet Union
- 1988 Peak Lenin 7143 m, Pamir, Soviet Union
- 1990 Kilimanjaro, 5893, Tanzania
- 1990 Shisha Pangma, 8033 m, Himalaya, Tibet
- 1991 Tolbatschik, 3682 m, Kamtschatka, Soviet Union
- 1993 Mount Kinabalu, 4101 m, Malaysia
- 2006 Ararat, 5165 m, Turkey/Armenia
- 2009 Shisha Pangma, 8033 m, Himalaya, Tibet
- 2011 Peak Rasdelnaya, 6210 m, Pamir, Kyrgystan

### *Journalism, Photography*

*UdF (Unerlaubt durch Freundesland: Traveling through Soviet Union without permission)*

### *Jogging*

## **Sponsoring**

- Braille without Borders: Blindenschule Lhasa
- Deutschland Stipendium
- Haus unterm Regenbogen, Blaustein
- Jenaer Kirchbauverein e.V.
- JenLab Young Investigator Award
- Lions
- Memorial / Memorial Deutschland e.V.
- Plan
- Schulbildung und Lawinenopfer-Bergung Kyrgystan
- Special Olympics Deutschland
- Tibet Initiative Deutschland e.V.