

CV Karl Leo



1. General Information

Title, first name, surname	Prof. Dr. rer. nat. Dr. techn. h.c. Karl Leo
Date/place of birth/citizenship	10.07.1960 / Freiburg i. Brsg./German citizen
Actual position or status	Professor W3
Address	Technische Universität Dresden Dresden Integrated Center for Applied Physics and Photonic Materials (IAPP) and Institut für Angewandte Physik D- 01062 Dresden
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2. Academic Education with Degree

<i>Field of study</i>	<i>period/year</i>	<i>University</i>	<i>Degree</i>	<i>Thesis supervisor</i>
Physik	1980-1985	Universität Freiburg	Dipl.-Phys.	Adolf Goetzberger

3. Scientific Degrees (Dr./PhD, habil, others)

Degree	Field	University	Date	Thesis supervisor
Dr. rer. nat.	Physik	Universität Stuttgart	1988	Hans Queisser
Privatdozent	Physik	RWTH Aachen	1993	Heinrich Kurz

4. Professional Career after Graduation

<i>Period</i>	<i>Position</i>	<i>Affiliation</i>
10/2013-9/2014	Visiting Professor	King Abdullah University of Science and Technology, Thuwal, Saudi-Arabia
3/2009-7/2009	Visiting Professor	Tohoku University, Sendai, Japan
2001-2013	2001-2008 Department Head, 2008-2013 Director	Fraunhofer Institute for Photonic Microsystems/since 2012 Fraunhofer COMEDD
Since 1993	Full Professor of Optoelectronics	Technische Universität Dresden
1991-1993	Oberingenieur	RWTH Aachen
1989-1991	Postdoc	AT&T Bell Laboratories, Holmdel, NJ, USA
1986-1988	Research Associate	Max-Planck-Institut für Festkörperforschung, Stuttgart

5. Other Functions

<i>Period/year</i>	<i>Description</i>
2019-	Board Member of the Excellence Network “Complexity and Topology in Quantum Matter (ct.qmat)”
2015-2019	Board Member of the Excellence Network “Center for Advancing Electronics Dresden (cfaed)”
2009-2011	Director, Network “Organic Electronics Saxony” www.oes-net.de
2009-2012	Chair and Organizer, Plastic Electronics Conference, Dresden
2009	Visiting Professor, Institute for Materials Research, Tohoku University, Sendai, Japan
2008-2014, 2017-	Member of the Board of Heliatek GmbH, Dresden
2008-2016	Member of the Board of sim4tec GmbH, Dresden
2008-2015	Coordinator of DFG priority programme “Organic Photovoltaics” SPP1355
2008	Chair and Organizer, International Conference on Organic Electroluminescence, Dresden
2003-2009	Member and (2003-2006) Chair of Supervisory Board of Novaled AG, Dresden
Since 1999	Co-founder of 8 spin-off companies, >300 employees, >180M€ raised

6. Honors and Awards

<i>Year</i>	<i>Description</i>
2021	Lifetime Award of the European Patent Office
2021	Jan Rajchman Prize of the SID
2021	Blaise-Pascal medal for Physics of the European Academy of Sciences
2019	futureSAX Transfer Preis
2018	Election into the acatech – Deutsche Akademie der Technikwissenschaften
2015-2018	ISI “Highly Cited” Scientist in Materials Sciences
2017	Wilhelm-Ostwald-Medaille of the Saxonian Academy of Sciences
2016	Technology Transfer Prize of the Deutsche Physikalische Gesellschaft (DPG)
2015	Fellow of the Optical Society of America (OSA)
2015	Fellow of the Canadian Institute for Advanced Research (CIFAR)
2014	Election into the European Academy of Sciences (EURASC)
2014	Hector-Prize and Fellow, Hector Foundation
2013	Dr. techn. h.c., University of Southern Denmark
2012	Rudolf-Jaeckel-Preis of the German Society for Vacuum
2011	Future Prize of the German President
2010	ERC Advanced Grant
2006	Manfred-von-Ardenne-Preis, Europäische Fördergemeinschaft Dünne Schichten
2003	Election into the Leopoldina, National Academy of Sciences
2002	Gottfried-Wilhelm-Leibniz-Preis of the Deutsche Forschungsgemeinschaft
2002	Academy Prize of Berlin-Brandenburg Academy of Science
1992	Bennigsen-Förder award of the state Nordrhein-Westfalen
1988	Otto-Hahn-Medaille of the Max-Planck-Society

7. Publications

Performance factors

- H-factor: 115 (Google Scholar), 97 (Web of Science); m-factor: 3.3 (Google)
- Citations: >54,000 (Google Scholar), > 37,000 (Web of Science)
- > 700 refereed publications

Ten selected publications

1. Reservoir computing with biocompatible organic electrochemical networks for brain-inspired biosignal classification, M. Cucchi, C. Gruener, L. Petrauskas, P. Steiner, H. Tseng, A. Fischer, B. Penkovsky, C. Matthus, P. Birkholz, H. Kleemann, K. Leo, *Science Advances* **7**, eabh0693 (2021)
2. Efficient and low-voltage vertical organic permeable base light-emitting transistors, Z. Wu, Y. Liu, E. Guo, G. Darbandy, S.-J. Wang, R. Hübner, A. Kloes, H. Kleemann, K. Leo, *Nature Materials* 2021, <https://doi.org/10.1038/s41563-021-00937-0>
3. Molecular parameters responsible for thermally activated transport in doped organic semiconductors, M. Schwarze, D. Gaul, R. Scholz, F. Bussolotti, A. Hofacker, S. Schellhammer, B. Nell, B.D. Naab, Z. Bao, D. Spoltore, K. Vandewal, J. Widmer, S. Kera, N. Ueno, F. Ortmann, K. Leo, *Nature Materials* **18**, 242 (2019)
4. Elementary steps in electrical doping of organic semiconductors, M.L. Tietze, J. Benduhn, P. Pahner, B. Nell, M. Schwarze, M. Krammer, K. Zojer, K. Vandewal, and K. Leo, *Nature Comm.* **9**, 1182 (2018)
5. Organic narrowband near-infrared photodetectors based on intermolecular charge-transfer absorption, B. Siegmund, A. Mischok, J. Benduhn, O. Zeika, S. Ullbrich, F. Nehm, M. Böhm, D. Spoltore, H. Fröb, C. Körner, K. Leo and K. Vandewal, *Nature Comm.* **8**, 15421 (2017)
6. Band structure engineering in organic semiconductors, M. Schwarze, W. Tress, B. Beyer, F. Gao, R. Scholz, C. Poelking, K. Ortstein, A.A. Guenther, D. Kasemann, D. Andrienko, K. Leo, *Science* **352**, 1446 (2016).
7. Characterization of tandem organic solar cells, R. Timmreck, T. Meyer, J. Gilot, H. Seifert, T. Mueller, A. Furlan, M.M. Wienk, D. Wynands, J. Hohl-Ebinger, W. Warta, R.A.J. Janssen, M. Riede, K. Leo, *Nature Photonics* **9**, 478 (2015).
8. Doped Organic Transistors: Inversion and Depletion Regime, B. Lüssem, M.L. Tietze, H. Kleemann, C. Hoßbach, J.W. Bartha, A. Zakhidov, K. Leo, *Nature Comm.* **4**, 2775 (2013).
9. Correlation of π -Conjugated Oligomer Structure with Film Morphology and Organic Solar Cell Performance, R. Fitzner, E. Mena-Osteritz, A. Mishra, G. Schulz, E. Reinold, M. Weil, C. Körner, H. Ziehlke, C. Elschner, K. Leo, M. Riede, M. Pfeiffer, C. Uhrich, P. Bäuerle, *J. Am.Chem.Soc.* **134**, 11064 (2012).
10. White organic light-emitting diodes with fluorescent tube efficiency, S. Reineke, F. Lindner, N. Seidler, G. Schwartz, K. Walzer, B. Lüssem, K. Leo, *Nature* **459**, 234 (2009).

Patents

(co-) inventor of approx. 60 patent families, major part of them licensed or sold to companies