

## RÉSUMÉ

### **Prof. Dr. Eberhard K. U. Gross**

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### **Scientific Curriculum**

- Since 2017** Professor of Chemistry, Hebrew University Jerusalem.  
**Since 2009** Director at the Max Planck Institute of Microstructure Physics, Halle (Saale).  
**2001-2009** Professor of Theoretical Physics at the Free University Berlin.  
**1990-2001** Fiebigler Professor at University of Würzburg.  
**1986-1990** Heisenberg Fellow at University of California, Santa Barbara.  
**1986** Habilitation and *venia legendi*, J.W. Goethe University Frankfurt.  
**1984-1986** Postdoctoral physicist at University of California, Santa Barbara (with Walter Kohn)  
**1980-1984** Research assistant at J.W. Goethe University Frankfurt.  
**1980** Dr. phil. nat., J.W. Goethe University Frankfurt, Physics Department.

### **Honors and Awards**

- ERC Advanced Grant, 2018
- Fellow of the American Physical Society, 2017
- Berni Alder CECAM prize, Lausanne, 2016. Awarded every three years for outstanding contributions to the field of computer simulations in condensed matter physics, statistical physics and physical chemistry. It is the most prestigious European prize in this field and comes with a prize money of 5000 EUR.
- Tsungming Tu Prize, Taipei, 2016. Awarded once a year, this is the highest academic honor granted by the Taiwanese Ministry of Science and Technology to international scholars for outstanding academic achievements. It comes with a prize money of 75,000 USD.
- Senior CMOA Medal for outstanding scientific achievements, 2015
- Visiting Research Professorship at University of Hong Kong, 2013-2017.
- Max Planck Fellow at the Fritz-Haber-Institut Berlin, 2005-2009.
- Schlumberger Award with medal, Cambridge, UK, 2004.
- Visiting Fellow, Trinity College, Cambridge, UK, 2003-2004.
- Benjamin Meaker Professorship, University of Bristol, UK, 2000.
- International Research Fellow of the Australian Research Council, 1994-1995.
- Heisenberg Fellowship (a highly prestigious young-researcher fellowship of the German Science foundation that allows the recipient to spend up to 5 years at any scientific institution worldwide), 1986-1990.
- NATO Postdoctoral Fellowship, 1984.
- Study Fellowship and PhD Fellowship of the "Studienstiftung des deutschen Volkes".(Federal German foundation for the support of outstanding students), 1973-1979.
- First Prize in the Federal German Mathematics Competition, 1971.

**Over 275 articles and book chapters, cited more than 32,000 times.**

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### **Five most-cited publications** (citations according to google scholar on 27.10.2018)

- 1.) (6322 citations)  
*Density functional theory for time-dependent systems*  
E. Runge and E.K.U. Gross, Phys. Rev. Lett. **52**, 997 (1984).
- 2.) (1480 citations)  
*Excitation energies from time-dependent density-functional theory*  
M. Petersilka, U.J. Gossmann and E.K.U. Gross, Phys. Rev. Lett. **76**, 1212 (1996).
- 3.) (1041 citations)  
*Density-functional theory of time-dependent phenomena*  
E.K.U. Gross, J.F. Dobson and M. Petersilka, Topics in Current Chemistry **181**, 81 (1996).
- 4.) (1014 citations)  
*Time-dependent density functional theory*  
E.K.U. Gross and W. Kohn, Adv. Quant. Chem. **21**, 255 (1990).
- 5.) (955 citations)  
*Local density functional theory of frequency-dependent linear response*  
E.K.U. Gross and W. Kohn, Phys. Rev. Lett. **55**, 2850 (1985).

### Textbook (4625 citations)

Density Functional Theory, an approach to the quantum many-body problem  
R.M. Dreizler and E.K.U. Gross, Springer (1990).

### **More than 380 invited lectures at International Conferences and Colloquia** (since 2000)

#### **Special lectures**

- *The 2016 Keneth S. Pitzer Memorial Lecture, UC Berkeley, October 25, 2016.*
- *The 2015 CECAM Lecture, EPFL (Switzerland), September 28, 2015.*
- *Greg Watson Lecture, Rutherford Appleton Laboratory (UK), May 16, 2011.*
- *Zhong Guan Cun Forum, Institute of Physics, Chinese Academy of Sciences (Beijing), December 19, 2006*
- *Pauli Colloquium, University of Vienna (Austria), March 31, 2006.*
- *Ehrenfest Colloquium, University of Leiden (Netherlands), April 27, 2005.*
- *Schlumberger Lecture, University of Cambridge (UK), January 15, 2004.*
- *Benjamin Meaker Lecture, University of Bristol (UK), March 27, 2000.*

#### **Activities within the Scientific Community (from 2000 onwards)**

- Co-organizer of 28 International Workshops, Conferences and Schools.
- Member of the DFG Fachkollegium (DFG Review Board) since 2016.
- Member of the Scientific Advisory Board of NORDITA, Stockholm.
- Member of the Scientific Advisory Committee of CECAM (Centre Européen du Calcul Atomique et Moléculaire), Lausanne, since 2010.
- German representative (2003-2009) in the Council of CECAM (Centre Européen du Calcul Atomique et Moléculaire); president of CECAM Council 2004-2008.
- Editorial Board member of the Kluwer series "*Progress in Theoretical Chemistry and Physics*".
- Steering Committee member of the ESF program "Interdisciplinary Approaches to Functional Electronic and Biological Materials" (INTELBIOMAT).

- Steering Committee member of the ESF program “*Electronic Structure Calculations for Elucidating the Complex Atomistic Behavior of Solids and Surfaces*” (STRUC- $\Psi_k$ ).
- Organizer of more than 25 International Workshops and Schools.
- Node coordinator in the EU FP7 Nanosciences, Nanotechnologies, Materials and new Production Technologies Collaborative Project “*CRONOS: The dynamics and control in nanostructures for magnetic recording and energy applications*”, 2012-2015.
- Node coordinator in the EU Infrastructure Initiative: ETSF-I3 (and member of governing board), 2008-2011.
- Node coordinator in the EU Network of Excellence “*NANOQUANTA: Nanoscale Quantum Simulations for Nanostructures and Advanced Materials*” (and member of governing board), 2004-2008.
- Node coordinator in the EU Research Infrastructures Action “*LIGHTNET*”, a theory consortium associated with synchrotron-related research, 2006-2010.
- Node leader (and coordinator of all theory projects) in the EU Research and Training Network “*EXC!TING: First-Principles Approach to the Calculation of Optical Properties of Solids*”, 2002-2006.
- Node leader (and coordinator of all superconductivity projects) in the EU TMR Network “ *$\Psi_k$ : Ab initio calculation of complex processes in materials*”, 1998-2003.
- Project leader in the DFG Priority Program SPP 1145 “*Modern and Universal First-Principles Methods for Many-Electron Systems in Chemistry and Physics*” (and co-initiator of the whole program), 2003-2009.
- Project leader in the DFG Collaborative Research Center SFB 410 “*II-VI Semiconductors, Growth Mechanisms, Low-Dimensional Structures and Interfaces*”, 2000-2003.
- Project leader in the DFG Collaborative Research Center SFB 450 “*Analysis and Control of Ultrafast Photoinduced Reactions*”, 2004-2007.
- Project leader in the DFG Collaborative Research Center SFB 658 “*Elementary Processes in Molecular Switches at Surfaces*”, 2005-2009.
- Project leader in the DFG Collaborative Research Center SFB 762 “*Functionality of Oxide Interfaces*”, from 2012.
- Project leader in the DFG Graduate College “*Electronic Density in Chemical and Biological Systems*”, 2001-2004.