

Curriculum Vitae

Prof. Dr. Thomas Baumert

(born 1962, married, three children)

Universität Kassel
Institut für Physik und CINSaT
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Professional Preparation

- 1982 - 1988 Study of Physics at the University of Freiburg
Diploma thesis: "Construction of a colliding pulse mode locked ring dye laser (in German)" highest grade
Supervisor: Prof. Dr. Gustav Gerber
- 1988 - 1992 PhD in Experimental Physics at University of Freiburg
PhD thesis: "Femtosecond pump-probe studies on multi-photon ionization and fragmentation dynamics of molecules and small metal clusters (in German)" summa cum laude
Supervisor: Prof. Dr. Gustav Gerber
- 1992 - 1993 Post Doctoral fellow in the group of Prof. Dr. Ahmed Zewail, California Institute of Technology
- 1993 - 1997 Habilitation in Experimental Physics at University of Würzburg in the group of Prof. Dr. Gustav Gerber
Habilitation treatise: "Femtosecond spectroscopy of small molecules (in German)"
Venia Legendi: 1997

Appointments

- 1998 - 1999 Head of LIDAR group, Deutsches Zentrum für Luft und Raumfahrt, Oberpfaffenhofen
- 1999 - Full Professor of Experimental Physics at University of Kassel

Research Interests

Femtosecond Spectroscopy, Femtosecond Pulse Shaping and Ultrafast Laser Control with emphasis on

- Quantum control and control of chemical reactions
- Development of nonlinear microscopy, spectroscopy and nanostructuring techniques
- Ultrafast electron diffraction

Awards

- Gödecke Award for best thesis of the year in the physics department (1992)
- Research-Scholarship of *DFG* (1992-1993)
- Habilitation-Scholarship of *DFG* (1995-1997)
- Scholarship of *Fonds der Chemischen Industrie* (1995 – 1997)
- Heisenberg-Scholarship of *DFG* (1997-1998)
- *Philip-Morris-Award* (2000)
- *GInO* Innovation Award (2003)

Further Activities

- more than 80 publications in refereed journals with a total of more than 4500 citations; h-index: 36 (see *Researcher ID* : D-3962-2009); 4 Patents; more than 150 invited and contributed talks
- 2008 - 2012 elected representative of German AMOP community in *DFG*

- Vice Dean-/ Dean (2001 - 2003); since 2003 elected Managing Director of the Physics Institute at University of Kassel
- Member of DFG, OSA, DHV
- Referee for science funding agencies (DFG, NSF, DOE, Cluster of Large Scale Laser Installations, MPG, EU, Humboldt) and many scientific journals
- Conference (Co-)Organizations since 1999: three Symposia within DPG Spring meetings, one Heraeus meeting, one Symposium within APS meeting, one GRC
- Guest Editor for Journal of Physics B (2008) and JOSA B (2014)

List of ten most important papers (in chronological order)

1. "Femtosecond pump-probe photoelectron spectroscopy: Mapping of vibrational wave-packet motion"

A. Assion, M. Geisler, J. Helbing, V. Seyfried and T. Baumert
Phys. Rev. A, Vol. 54, No. 6, 1996, R4605 - R4608.

2. "Control of Chemical Reactions by Feedback-Optimized Phase-Shaped Femtosecond Laser Pulses"

A. Assion, T. Baumert, M. Bergt, T. Brixner, B. Kiefer, V. Seyfried, M. Strehle and G. Gerber
Science, Vol. 282, 1998, 919 – 923.

3. "Interferences of Ultrashort Free Electron Wave Packets"

M. Wollenhaupt, A. Assion, D. Liese, C. Sarpe-Tudoran, T. Baumert, S. Zamith, M. A. Bouchene, B. Girard, A. Flettner, U. Weichmann and G. Gerber
Phys. Rev. Lett., Vol. 89, No. 17, 2002, 173001 – 173004.

4. "Femtosecond laser-induced-breakdown spectrometry for Ca_2^+ analysis of biological samples with high spatial resolution"

A. Assion, M. Wollenhaupt, L. Haag, F. Maiorov, C. Sarpe-Tudoran, M. Winter, U. Kutschera and T. Baumert
Appl. Phys. B, Vol. 77, No. 4, 2003, 391 – 398.

5. "Quantum Control by Ultrafast Polarization Shaping"

T. Brixner, G. Krampert, T. Pfeiffer, R. Selle, G. Gerber, M. Wollenhaupt, O. Gräfe, C. Horn, D. Liese and T. Baumert
Phys. Rev. Lett. Vol. 92, No. 20, 2004, 208301.

6. "Femtosecond laser photoelectron spectroscopy on atoms and small molecules: Prototype studies in quantum control"

M. Wollenhaupt, V. Engel and T. Baumert
Annual Review of Physical Chemistry, Vol. 56, 2005, 25-56.

7. "Control of ionization processes in high band gap materials via tailored femtosecond pulses"

L. Englert, B. Rethfeld, L. Haag, M. Wollenhaupt, C. Sarpe-Tudoran and T. Baumert
OPTICS EXPRESS, 2007, Vol. 15, No. 26, 17855.

8. "Three-dimensional tomographic reconstruction of ultrashort free electron wave packets"

M. Wollenhaupt, M. Krug, J. Köhler, T. Bayer, C. Sarpe-Tudoran and T. Baumert
Applied Physics B, 2009, 95, 647 – 651.

9. "Circular Dichroism in the Photoelectron Angular Distributions of Camphor and Fenchone from Multiphoton Ionization with Femtosecond Laser Pulses"

C. Lux, M. Wollenhaupt, T. Bolze, Q. Liang, J. Köhler, C. Sarpe and T. Baumert
Angewandte Chemie International Edition, 2012, 51, 5001 – 5005.

10. "Complete Photoionization Experiments via Ultrafast Coherent Control with Polarization Multiplexing"

P. Hockett, M. Wollenhaupt, C. Lux and T. Baumert
Phys. Rev. Lett., 2014, 112, 223001.

List of Patents

	Patent/Bezeichnung der Erfindung	Patentnummer
1	Hochleistungspulsformer in Kompaktbauweise	102 50 014 Erteilt am 02.08.2007
2	Verfahren zur Bestimmung der Oberflächenstruktur einer Materialprobe mit ultrakurzen Laserpulsen und Vorrichtung zur Durchführung des Verfahrens	102 50 012 Erteilt am 15.12.2004
3	Optisches Materialanalyseverfahren für Materialproben und Vorrichtung zur Durchführung des Verfahrens	102 50 013 Erteilt am 04.05.2005
4	Adaptive, rückkopplungsgesteuerte Materialbearbeitung mit ultrakurzen Laserpulsen	102 50 015 Erteilt am 16.09.2004

Kassel, December 2014