

## Prof. Dr. Thomas Baumert (born 1962, married, three children)

Universität Kassel

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### Academic education and scientific degrees

1997 Habilitation in Physics at the University of Würzburg (with Gustav Gerber)

1988 – 1992 PhD in Physics at the University of Freiburg, (summa cum laude, with Gustav Gerber)

1988 Diploma in Physics at the University of Freiburg, (highest grade, with Gustav Gerber)

### Professional background

2003 – 2023 Director of the Physics Institute at University of Kassel

2001 – 2003 Vice Dean of Physics Department

1999 – Full Professor at the University of Kassel

1998 – 1999 Head of LIDAR Group, Deutsches Zentrum für Luft und Raumfahrt, Oberpfaffenhofen

1992 – 1993 Postdoctoral fellow, California Institute of Technology, USA (with Ahmed Zewail)

### Selected research topics and selected professional accomplishments

Femtosecond spectroscopy, femtosecond pulse shaping and ultrafast laser control with emphasis on quantum control, control of chemical reactions, chirality, material processing on nanometer scale, plasma spectroscopy with high temporal and spatial resolution and ultrafast electron diffraction

ResearcherID: D-3962-2009,

Orcid ID: 0000-0003-1760-7493

150 peer reviewed publications / 4 patents / h=47 Web of Science / h=56 Google Scholar

2018 – 2023 Speaker SFB 1319 - ELCH

“Extreme Light for Sensing and Driving Molecular Chirality”

2015 Chair of GRC on "Quantum Control of Light and Matter" (together with Lorenza Viola)

2008 – 2012 Fachkollegiat DFG (AMOP)

2000 Founding Member of the “Center for Interdisciplinary Nanostructure, Science and Technology (CINSaT)” of the University of Kassel

## Supervisory work

Since 1999                      Responsibility for 25 bachelor students, 40 diploma / master students,  
40 PhD students and 4 Habilitations

## Honours, distinctions, scholarships, awards

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

## Ten most important papers in refereed journals (in reverse chronological order)

1. Winkler, T., Haahr-Lillevang, L., Sarpe, C., Zielinski, B., Götze, N., Senftleben, A., Balling, P. & Baumert, T. **Laser amplification** in excited dielectrics *Nature Physics* **14**, 74 – 79 (2018).
2. Gerbig, C., Senftleben, A., Morgenstern, S., Sarpe, C. & Baumert, T. Spatio-temporal resolution studies on a highly compact **ultrafast electron diffractometer**. *New J. Phys.* **17**, 43050 (2015).
3. Lux, C., Wollenhaupt, M., Bolze, T., Liang, Q., Köhler, J., Sarpe, C. & Baumert, T. **Circular Dichroism in the Photoelectron Angular Distributions** of Camphor and Fenchone from Multiphoton Ionization with Femtosecond Laser Pulses. *Angew. Chem. Int. Ed.* **51**, 5001–5005 (2012).
4. Englert, L., Rethfeld, B., Haag, L., Wollenhaupt, M., Sarpe-Tudoran, C. & Baumert, T. **Control of ionization processes in high band gap materials** via tailored femtosecond pulses. *Opt. Express* **15**, 17855–17862 (2007).
5. Wollenhaupt, M., Engel, V. & Baumert, T. Femtosecond Laser Photoelectron Spectroscopy on Atoms and Small Molecules: **Prototype Studies in Quantum Control**. *Annu. Rev. Phys. Chem.* **56**, 25–56 (2005).
6. Brixner, T., Krampert, G., Pfeifer, T., Selle, R., Gerber, G., Wollenhaupt, M., Graefe, O., Horn, C., Liese, D. & Baumert, T. **Quantum control by ultrafast polarization shaping**. *Phys. Rev. Lett.* **92**, 208301 (2004).
7. Assion, A., Wollenhaupt, M., Haag, L., Mayorov, F., Sarpe-Tudoran, C., Winter, M., Kutschera, U. & Baumert, T. **Femtosecond laser-induced breakdown spectrometry** for  $\text{Ca}_2^+$  analysis of biological samples with high spatial resolution. *Appl. Phys. B* **77**, 391–397 (2003).
8. Wollenhaupt, M., Assion, A., Liese, D., Sarpe-Tudoran, C., Baumert, T., Zamith, S., Bouchene, M. A., Girard, B., Flettner, A., Weichmann, U. & Gerber, G. **Interferences of Ultrashort Free Electron Wave Packets**. *Phys. Rev. Lett.* **89**, 173001 (2002).
9. Assion, A., Baumert, T., Bergt, M., Brixner, T., Kiefer, B., Seyfried, V., Strehle, M. & Gerber, G. **Control of chemical reactions** by feedback-optimized phase-shaped femtosecond laser pulses. *Science* **282**, 919–922 (1998).
10. Assion, A., Geisler, M., Helbing, J., Seyfried, V. & Baumert, T. **Femtosecond Pump- Probe Photoelectron Spectroscopy**: Mapping of Vibrational Wave-Packet Motion. *Phys. Rev. A* **54**, 4605–4608 (1996).

October 2023