

BIOGRAPHY



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Technische Universität Dresden
Institute of Applied Physics
01062 Dresden
GERMANY

**BIRTHPLACE/
DATE:** Coburg, October 28, 1952

EDUCATION: M.S. (Diplom), 1978
University of Würzburg, Germany

Ph.D. (Dr. rer. nat.) in Physics 1981, with distinction
University of Würzburg, Germany

**HONORS AND
AWARDS:** Member of the German National Academy (Leopoldina), 2013
Honorary Ph.D. from the University of Rostock (Germany), 2010
Le Prix La Recherche, France, 2005
Research Award of Thuringia, 2004
Honoris Causa of the Russian Academy of Sciences, 2003
Fellow of the Optical Society of America (OSA), 2002
Fellow of the Institute of Physics (IOP), UK, 2002
Member of the Saxon Academy of Sciences, 1998
Member of the Academy of Sciences in Erfurt, 1998
Rudolf Kingslake Medal and Prize, SPIE, 1993
Humboldt Stipendiat, 1991-92
IEEE Senior Member, 1990
Prize from the President of Unterfranken for Ph.D. thesis, 1982
National Science Foundation of Germany (DFG) fellowship for a
postdoctoral year at Rice University, 1981
Roentgen Prize for M.S. thesis from the University of Würzburg, 1979
NATO Scholarship, 1977

**PROFESSIONAL
SOCIETIES:** German Physical Society, President 2002-2004
Vice-President 2004-2006
Member of the executive committee 1998-2006
Optical Society of America (Fellow)
American Physical Society
Institute of Physics, UK (Fellow)

POSITIONS:

- Scientific Director of Helmholtz-Zentrum Dresden - Rossendorf
Professor for quantum optics, Technische Universität Dresden
April 2006 – present
- Visiting Professor at the University of Strathclyde, Glasgow, UK
2006 - present
- Chair of quantum electronics, Friedrich-Schiller Universität Jena
1994- 2006
- Chairman (Dekan) of the FSU Jena Physics Department
1996-1998
- Professor at Rice University, Houston, Texas, USA
1992-1994
- Visiting Scientist (Humboldt Fellow) at the Max-Planck Institute for
Biophysikalische Chemie in Göttingen 1991-1992
- Associate Professor (Tenure) at Rice University, Houston, Texas, USA
1988-1992
- Assistant Professor at Rice University, Houston, Texas, USA
1985-1988
- Assistant Professor (Akademischer Rat, Hochschulassistent)
at the University of Würzburg (FRG)
1982-1984
- Post-doctoral year at Rice University, Houston, Texas, USA
1981-1982
- Assistant instructor at the University of Würzburg (FRG)
1975-1981

RESEARCH INTERESTS: Quantum electronics, Physics with high intensity ultrashort laser pulses, Laser materials interaction with applications in microelectronics, plasma physics, and remote sensing

INDUSTRIAL EXPERIENCE:

- Xtreme Technologies, 2002-2005 (Consultant)
- Jenoptik, 1995-present (Member of the Scientific Advisory Board)
- Texas Instruments, Inc., 1990-1994 (Consultant)
- Space Power, Inc., 1989-1991 (Consultant)
- HZDR Innovation GmbH, 2012 - present (Member of the Board)

TEACHING EXPERIENCE:

- Experimental Physics (FSU Jena)
- Atomic and Molecular Physics (FSU Jena)
- Introduction to Laser Physics (FSU Jena)
- Laser-Matter-Interaction (FSU Jena)
- Advanced laboratory course for physicists (FSU Jena)
- Elektrodynamics I ("intermediate level") (Rice)
- Elektrodynamics II ("intermediate level") (Rice)
- Laser Physics (Rice)
- Plasma Physics (Rice)
- Advanced Laserphysics (Rice)
- Nonlinear Optics (Rice, FSU Jena, TU Dresden)

Relativistic Optics (TU Dresden)
Seminars: Atomic, Molecular and Laser Physics (Rice, FSU Jena)

PUBLICATIONS: 6 bookchapters, about 300 publications in refereed scientific journals,
11 patents, H-index: 45

10 important publications:

Pulsed ultraviolet-laser ablation

Pettit GH; **Sauerbrey R**

Applied Physics A -Materials Science & Processing 56, 51 (1993)

Angle-dependent x-ray emission and resonance-absorption in a laser-produced plasma generated by a high-intensity ultrashort pulse

Teubner U; Bergmann J; Van Wonterghem B; Schafer, FP; **Sauerbrey R**

Physical Review Letters 70, 794 (1993)

Temporally resolved measurement of electron densities ($>10^{23}$ cm⁻³) with high harmonics

Theobald W; Hassner R; Wulker C; **Sauerbrey R**

Physical Review Letters 77, 298 (1996)

Remote sensing of the atmosphere using ultrashort laser pulses

Rairoux P; Schillinger H; Niedermeier S; Rodriguez, M; Ronneberger, F; **Sauerbrey, R**;

Stein, B; Waite, D; Wedekind, C; Wille, H; Wöste, L; Ziener, C

Applied Physics B - Lasers and Optics 71, 573 (2000)

The critical laser intensity of self-guided light filaments in air

Kasparian J; **Sauerbrey R**; Chin SL

Applied Physics B - Lasers and Optics 71, 877 (2000)

MeV X rays and photoneutrons from femtosecond laser-produced plasmas

Schwoerer H; Gibbon P; Dusterer S; Behrens, R; Ziener, C; Reich, C; **Sauerbrey, R**

Physical Review Letters 86, 2317 (2001)

White-light filaments for atmospheric analysis

Kasparian J; Rodriguez M; Mejean G; Yu, J; Salmon, E; Wille, H; Bourayou, R; Frey, S;

Andre, YB; Mysyrowicz, A; **Sauerbrey, R**; Wolf, JP; Wöste, L

Science 301, 61 (2003)

Laser-plasma acceleration of quasi-monoenergetic protons from microstructured targets

Schwoerer H; Pfoth S; Jackel O; Amthor, KU; Liesfeld, B; Ziegler, W; **Sauerbrey, R**;

Ledingham, KWD; Esirkepov, T

Nature 439, 445 (2006)

On the Observation of Vacuum Birefringence

Heinzl Th; Liesfeld B; Amthor K-U; Schwöerer H; **Sauerbrey R**; Wipf A

Optics Communications 267, 318 (2006)

Dose dependent biological damage of tumour cells by laser-accelerated proton beams

Kraft, S D; Richter C; Zeil K; Baumann M; Beyreuther E; Bock S; Bussmann M; Cowan T E;

Dammene Y; Enghardt W; Helbig U; Karsch L; Kluge T; Laschinsky L; Lessmann E; Metzkes

J; Naumburger D; **Sauerbrey R**; Schürer M; Sobiella M; Woithe J; Schramm U; Pawelke J

New Journal of Physics 12. 085003 (2010)