

Curriculum vitae Rudolf K. Thauer (4 pages) (04-06-18)

Personal Data:

Born October 5, 1939 in Frankfurt/Main, Germany
Married since 1968 with Helga Thauer (born Krebel)
Three children: Katrin (1969), Jenny (1972), Christian (1976)
Home Address: Vogelsbergstraße 47, D-35043 Marburg

University Studies

1968-1971 Habilitation (Dr. rer. Nat. habil.), University of Freiburg (Institute of Biochemistry, together with Kurt Jungermann) (02/71)
1966-1968 Ph.D. (Dr. rer. nat.), University of Freiburg (Institute of Biochemistry, in the laboratory of Karl Decker) (summa cum laude) (05/68)
1962-1966 Biochemistry (Diplom), University of Tübingen (Diploma Thesis in the Institute of Physiological Chemistry, laboratories of Friedhelm Schneider and Günther Weitzel) (with honors) (06/66)
1962-1965 Medicine, University Tübingen (experimental work in the Institute of Pharmacology, laboratory of Hartmut Uehleke; first 3 publications)
1963 Doktorandenstipendium der Thyssen Stiftung (300 DM/Monat)
1959-1961 Medicine, University of Frankfurt, Physikum (with honors) (10/61).

Academic appointments

12/14 - Emeritus at the Max Planck Institute for Terrestrial Microbiology,
11/07 – 11/14 Emeritus group leader at the Max Planck Institute for Terrestrial Microbiology, Marburg
1991-2007 Director at the Max Planck Institute for Terrestrial Microbiology, Marburg, Department of Biochemistry
1976-2005 Full Professor, Microbiology, University of Marburg (until 03/05)
1972-1976 Associate Professor, Plant Biochemistry, Ruhr-University of Bochum
1971-1972 Assistant Professor, Biochemistry, University of Freiburg
1968-1971 Research Associate, Biochemistry, University of Freiburg

Guest Professorships

1999 Shimizu Visiting Professor, Environmental Engineering, Stanford University, CA, USA (03/99-05/99 in the lab. of A. Spormann)
1991 Rolf Sammet Visiting Professor, Organic Chemistry, University of Frankfurt (05/91-07/91 in the Institute of G. Quinkert)
1972 Visiting Scientist, Biochemistry, Case Western Reserve University, Cleveland, Ohio, USA (02/72-04/72 in the laboratory of H. G Wood)

Academic Services (the most important)

2014-2018 Member of the working group "Resources" of the German Academy Project "Energy Systems of the Future"
2013 Member of the Jury of the Israel Prime Minister Prize for Innovation in Alternative Fuels for Transportation: 1 million US\$
2010-2013 Coordinator of the chapter "Availability and sustainability of biomass as an energy source" in the Leopoldina Statement "Bioenergy-Chances and Limits"
2010-2012 Member of the LOEWE center for Synthetic Microbiology in Marburg
2008-2010 Member of the Scientific Advisory Board of GLBRC (Madison, WI, USA)
2005-2010 Member of the Präsidium der Deutschen Akademie der Naturforscher Leopoldina, Halle
2004-2011 Member of the Kuratorium der Angewandten Chemie
2004-2006 Member of the DFG committee evaluating the Deutsch-Israelische Projektkooperation (DIP) from 20.-23. March 2004 and of the MPG committee evaluating the Moshe Shilo Minerva Center from 4.-8. February 2006 in Israel
2003-2007 Member of the Scientific Advisory Board of the "Southeast Collaboratory for Structural Genomics, University of Georgia, Athens, USA

2002-2004 Initiator and first Speaker of the International Max Planck Research School in Marburg

2002 Initiation of the „Mikrobiologie Lehrpfad“ around the Max Planck Institute

2002 Member of the committee evaluating the Faculty of Biology of the ETH Zürich (17.-22- November 2002)

2002-2008 DFG Vertrauensdozent

2001- Member of the Kuratorium of the Marburger Universitätsbund

2000-2003 Head of the Scientific Advisory Board of the Stiftung Kerckhoff Herz- und Rheumazentrum Bad

1998-2003 Member of the Selection Committee of the DFG for the Leibniz Prize

1998-2002 Member of the “Europäischer Beraterkreis” der MPG

1996-1997 Member of the Kuratorium of the Deutsche Institut für Ernährungsforschung (DIfE), Potsdam-Rehbrücke and of the Scientific Advisory Board of the Groningen Biomolecular Sciences and Biotechnology Institute

1996-2004 Initiator and member of the DFG Sonderforschungsbereich “Interaktion, Anpassung und katalytische Fähigkeiten von Bodenorganismen”

1996-1999 Member of the Scientific Advisory Board of the Gesellschaft für Strahlenforschung (GSF), Neuherberge

1995-2003 Member of the Kuratorium of the Max Planck Institute for Physiologische und klinische Forschung, Bad Nauheim

1995 -2003 Member of the following search committees: MPI for Limnology, MPI for experimental Medizin, MPI für physiologische und klinische Forschung, and MPI für Strahlenforschung

1994-2001 Member of the founding committee for the Max Planck Institute for Chemical Ecology, Jena

1994-1998 Member of the Scientific Advisory Board of the Max Planck Institute for Marine Microbiology, Bremen

1993-1998 Member of the core committee of the MPI for Plant Physiology, Golm

1993-2000 Head of the Scientific Advisory Board of the “Biozentrum” in Würzburg

1992-1999 Member of the committee “BMS Forschungsperspektiven” of the MPG

1992-1994 Member of the founding committee of the German-American Academic Council (Deutsch-Amerikanische Akademische Konzil) (DAAK)

1991-1996 Building the new Max Planck Institute for Terrestrial Microbiology as Founding Director (together with Ralf Conrad)

1990-2000 Initiator and first Speaker of the DFG Graduate School “Enzymchemie”

1990 -1991 Mitglied des Forschungs-und Technologie-Beirats Hessen

1989 Organization of the joint meeting of the VAAM, DGHM and NVvM in Marburg with 1200 participants (together with Wolfgang Buckel)

1989-1994 Coordinator of the BMFT- Förderkonzept “Biologische Wasserstoffgewinnung”

1989-1991 Mitglied des Nassauer Gesprächskreis (Ministerpräsident Dr. Walter Wallmann)

1988-1991 Member of the founding committees for the Max Planck Institute for Marine Microbiology and for the Max Planck Institute for Terrestrial Microbiology

1986-2011 Member of the board of „Freunde des Bildarchiv Foto Marburg“

1984-1986 Gruppenvorsitzender für Biologie der Gesellschaft Deutscher Naturforscher und Ärzte (GDNÄ)

1983-1987 Vice President of the German Science Foundation (DFG)

1982-1988 Member of a group teaching each summer a one week biotechnology course at the MIT, Cambridge, Massachusetts; USA (Organizer: Anthony J. Sinskey)

1981-1982 Dean of the Faculty of Biology, Philipps-University Marburg

1980-1983 Treasurer of the SFB “Zellenergetik und Zelldifferenzierung”

1980-1988 Organization each year of a two days symposium on different aspects of applied microbiology (together with Paul Prëve from the Höchst AG)

- 1979-1989 Initiator and first Speaker of the DFG Priority Programme
"Methanogene Bakterien"
- 1977-1981 Member of Selection Committee of the Humboldt Foundation
- 1977-2007 Member of the Editorial Board of the European Journal of Biochemistry
(now FEBS Journal)
- 1974-2002 Member of the Editorial Board of Archives of Microbiology

Industrial cooperations (the most important)

- 2015- Member of the Scientific Advisory Board of TRELYS(California, USA)
- 2014- Consultant of DMS Nutritional Products (Basel, Switzerland)
- 2012- Consultant of Evonik Industries AG (CREAVIS)
- 2008- Member of the Scientific Advisory Board of LanzaTech (Skokie/Chicago, USA)
- 2000-2002 Member of the Scientific Advisory Board of the Dow Chemical Company,
Midland, USA
- 2002- Member of the "Initiative Biotechnologie und Nanotechnologie" Marburg
(Head until 2004)
- 2000-2017 Member of the Scientific Advisory Board of Future Capital AG,
Frankfurt
- 1988-1997 Member of the Aufsichtsrat der Behringwerke AG Marburg
- 1984-1990 Consultant for the Höchst AG, Frankfurt
- 1983-1997 Member of the Kuratorium des Fonds der Chemischen Industrie

Publications

349 original papers, 76 reviews, 38 published lectures, 3 theses (diploma thesis, doctoral thesis, habilitation thesis) and 19 miscellaneous publications. Web of Science: h = 79 (almost 26,000 citations); Google Scholar: h = 93 (over 36,000 citations).

The most cited paper with more than 2,600 citations is: Thauer, R.K., Jungermann, K. and Decker, K. (1977) Energy conservation in chemotrophic anaerobic bacteria. *Bact. Rev.* 41, 100-180.

Research Interests

Biochemistry, physiology and ecology of anaerobic bacteria and archaea involved in the global methane cycle with a focus on the enzymes and coenzymes involved in the energy metabolism of acetogenic Clostridia, of sulfate-reducing bacteria and archaea, of methanogenic and methanotrophic archaea and of aerobic methanotrophic bacteria.

Graduate teaching and mentoring

90 PhD theses, 92 diploma theses, 9 state examination theses, 5 bachelor theses and 10 habilitations. Of the former graduates/Habilitanden/Postdocs now 30 hold professorships in Microbiology or Biochemistry at German Universities or abroad.

Autobiographic reviews

My lifelong passion for biochemistry and anaerobic microorganisms (2015) *Annual Review of Microbiology* 69, 1-30.

Flavin-based electron bifurcation, ferredoxin, flavodoxin and anaerobic respiration with protons (Ech) or NAD⁺ (Rnf) as electron acceptors: A historical review (2018) (Together with Wolfgang Buckel). *Frontiers in Microbiology*, Volume 9, Article 401, 1-24.

Awards and Honors

- Honorary Member of the Vereinigung für Allgemeine und Angewandte Mikrobiologie (2009)
- Honorary Doctor of the University of Freiburg, Germany (2007)
- Honorary Doctor of the University of Waterloo, Canada (2007)
- Honorary Doctor of the ETH Zürich/Switzerland (2001)

- Lwoff Medal Award of the Federation of European Microbiology Societies (2015)
- Medal for honor of the German Academy of Sciences Leopoldina (2013)
- Carl Friedrich Gauß-Medaille, Braunschweigische Wiss. Gesellschaft (2008)
- Carus-Preis der Stadt Schweinfurt (1993)

Carus-Medaille, Deutsche Akademie der Naturforscher Leopoldina, Halle (1992)
Gottfried Wilhelm Leibniz-Preis, Deutsche Forschungsgemeinschaft (1987)
Dannie-Heineman-Preis, Akademie der Wissenschaft zu Göttingen (1986)
Otto-Warburg-Medaille, Gesellschaft für Biologische Chemie (1984)

Thauera, name given by Joan Macy, then UC Davis, to a novel genus of beta- proteobacteria (1993); *Methanobrevibacter thaueri*, name given by Terry Miller, Albany, New York, to a novel species of *Methanobrevibacter* (2000).

Thauer Metal-free hydrogenase, name given by the chemist Gernot Boche (Angewandte Chemie Int. Ed. 36,107-109,1997) to a novel "metal-free" hydrogenase discovered in the Thauer lab. The enzyme contains one iron per active site but this iron, which was later shown to be essential for activity, is not redox active.

Named Lectures

Lars Ljungdahl Lecture, Athens, Georgia, USA (2015)
Marvin Bryant Memorial Lecture, Chicago, USA (2013)
Maynard and Suzanne Goldman Lecture, Marine Biological Laboratory, Woods Hole, Massachusetts, USA (2010)
Neil Welker Memorial Lecture, Wind River Conference on Prokaryotic Biology, Estes Park, Colorado, USA (2010)
Tsung-Ying Shen Lectures, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA (2007)
Division K Lecturer at the 105th ASM meeting in Atlanta, USA (2005)
Nelson J. Leonard Lectures, University of Illinois at Urbana Champaign, USA (2006)
Roger Y. Stanier Memorial Lecture, UC Berkeley CA, USA (2005)
Stanley Dagley Lectureship, University of Minnesota, Minneapolis, USA (2003)
Burroughs Welcome Visiting Professor, University of Wisconsin, Madison, USA (03/2000)
Marjory Stephenson Prize Lecture, SGM, Nottingham, England (1998)
Peter Hemmerich Vorlesung, Universität Konstanz, 1998
First Albert Neuberger Lecture in Tetrapyrrole Science, London, England (1997)
11th A.J. Kluyver Memorial Lecture, University of Delft, The Netherlands (1996)
Malcom Moos Distinguished Visiting Professor, University of Minneapolis, Minneapolis, USA (1990)

Membership in Academies

Foreign Member of the American Philosophical Society (founded 1743 by Benjamin Franklin) (since 2018)
Member of the American Academy of Microbiology (since 2012)
Member of the European Academy of Microbiology (since 2010)
Corresp. Member of the Rheinisch-Westfälische Akademie der Wissenschaften, Düsseldorf (since 1991)
Member of the Academia Europaea (since 1990)
Corresp. member of the Akademie der Wissenschaften zu Göttingen (since 1989)
Member of the Marburger Gelehrte Gesellschaft (since 1989)
Member of the Deutsche Akademie der Naturforscher Leopoldina (since 1984; from 1995 - 2001 Obmann; from 2002-2004 Senator; from 2005-2010 member of the presidium)

Official offers not accepted

Professor of Microbiology at the University of Illinois at Urbana-Champaign, USA (03/2007)
George Lynn Cross Professor of Microbiology, University of Oklahoma, Norman, USA (06/88 and 10/89)
Scientific Head of the Gesellschaft für Biotechnologische Forschung (GBF) in Stöckheim bei Braunschweig (10/83)
Professor of Microbiology at the University Regensburg (10/79)
Professor of Biotechnology at the University Düsseldorf (01/75)
Director at the Institute for Biotechnology at the KFA Jülich (10/75)