

BIOGRAPHICAL SKETCH

Frank Steglich

AFFILIATION: Max Planck Institute for Chemical Physics of Solids
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EDUCATION & PROFESSIONAL PREPARATION

Highschool
(Städt. Jungengymnasium)
Bottrop/W. Germany 1951-60
Studies of Physics
University of Münster; Germany 1960-61
University of Göttingen, Germany 1961-66
1963 "Vordiplom" in Physics
1966 "Diplom" in Physics
1969 "Dr. rer. nat."
University of Köln, Germany 1969-76 Postdoctoral Fellow
1976 "Habilitation" in Physics

APPOINTMENTS

1966 - 69 "Wissenschaftlicher Assistent" (Research Fellow), University of Göttingen, Germany
1969 - 76 "Wissenschaftlicher Assistent" (Research Fellow), University of Köln, Germany
1976 - 78 "Privatdozent" (Lecturer), University of Köln, Germany
1978 - 80 Professor of Physics (C3), Technical University (TU) Darmstadt, Germany
1980 - 98 Professor of Physics (C4), TU Darmstadt, Germany
1996 - 2012 Founding Director and Director of the Research Area Solid-State Physics, Max Planck Institute for Chemical Physics of Solids (MPI CPfS), Dresden, Germany
1999 - present Honorary Professor, TU Dresden, Germany
2012 - present Director emeritus, MPI CPfS, Dresden, Germany
2012 - present (Founding) Director, Center for Correlated Matter (CCM), Zhejiang University (ZJU), Hangzhou, China

HONORS

1986 - 87 Academy Stipend, Volkswagen Foundation
1986 Gottfried Wilhelm Leibniz Prize, German Research Foundation (Deutsche Forschungsgemeinschaft, DFG)
1986 - present Several Named Lectures
1989 Hewlett Packard Europhysics Prize, European Physical Society (EPS), with G.G. Lonzarich and H.R. Ott
1989 Humboldt Award for the Promotion of the Scientific Cooperation between France and the Federal Republic of Germany (Gay Lussac Humboldt Prize)
1990 International Prize for New Materials (James C. McGroddy Prize), American Physical Society, with Z. Fisk, H.R. Ott and J.L. Smith
1996 Honorary Professorship, W. Trzebiatowski Institute for Low Temperature and Structure Research (INTiBS), Polish Academy of Sciences (PAN), Wrocław, Poland
1999 Corresponding Member, Academy of Sciences, Göttingen, Germany
1999 Corresponding Member, Academy of Sciences of Saxony, Leipzig, Germany
2000 IUPAP Magnetism Award, ICM 2000, Recife, Brazil
2000 Honorary Doctorate, University of Augsburg, Germany
2002 Member, The German Academy of Science and Technology (acatec)
2004 Stern-Gerlach Medal, German Physical Society (Deutsche Physikalische Gesellschaft, DPG)
2005 Honorary Doctorate, University of Frankfurt/Main, Germany

2005	Honorary Doctorate, University of Köln, Germany
2005	Order of Merit, Federal Republic of Germany (Das große Verdienstkreuz des Bundesverdienstordens der Bundesrepublik Deutschland)
2006	Bernd T. Matthias Prize for Superconducting Materials, 2006 M ² S, Dresden, Germany
2008	Honorary Doctorate, Jagiellonian University, Kraków, Poland
2010	Foreign Member, Polish Academy of Sciences
2012 - present	Qiushi Distinguished Visiting Professor, ZJU, Hangzhou, China
2012 - present	Distinguished Visiting Professor, Institute of Physics (IOP), Chinese Academy of Sciences (CAS), Beijing, China
2015	Fellow of the American Physical Society (APS)
2018	West Lake Friendship Award, Zhejiang Province, China
2020	Fritz London Memorial Prize, LT 29, Sapporo, Japan, with V. Vinokur and Q.-K. Xue

SYNERGISTIC ACTIVITIES SINCE 2000

Member, Founding Committee, Laboratory for Pulsed High Magnetic Fields Dresden (HLD), Dresden, Germany, 1999 - 2000
 Vice President, German Research Foundation (DFG), 2001 - 07
 Member, Board of Governors, German-Israeli Foundation (GIF), 2002 – 07
 Member, International Advisory Board, Institute for Materials Research (IMR), Tohoku University; Sendai, Japan, 2003
 Member, External Advisory Committee, National High Magnetic Field Laboratory (NHMFL), Florida State University, Tallahassee, USA, 2003 - 08
 Member, Scientific Advisory Board, Institute for Quantum Matter, Johns Hopkins University, Baltimore, USA, 2010
 Chairman, Scientific Advisory Board, Center for "Electronic Correlations and Magnetism" (EKM), University of Augsburg, Germany, since 2006
 Member, Scientific Committee, Einstein Foundation, Berlin, Germany, 2012 - 18

COLLABORATORS AT OTHER AFFILIATIONS

T. Cichorek, D. Kaczorowski, A. Pikul and W. Suski (INTiBS, PAN, Wrocław, Poland), P. Coleman (Rutgers University, Piscataway, NJ, USA), Z. Fisk (UC Irvine, CA, USA), S. Friedemann (University of Bristol, UK), P. Gegenwart and A. Loidl (University of Augsburg, Germany), K. Ishida (University of Kyoto, Japan), T. Kasuya (Tohoku University, Sendai, Japan), C. Krellner, M. Lang and J. Müller (University, Frankfurt/M., Germany), M. Loewenhaupt (TU Dresden, Germany), K. Miyake (Osaka University, Japan), S. Paschen (TU Vienna, Austria), N. E. Phillips (UC Berkeley, CA, USA), N. K. Sato (University of Nagoya, Japan), Q. Si (Rice University, Houston, TX, USA), A. M. Strydom (University of Johannesburg, South Africa), P. Sun (IOP, CAS, Beijing, China), J. D. Thompson (Los Alamos National Laboratory, NM, USA), H. von Löhneysen (KIT, Karlsruhe, Germany), N. L. Wang (Peking University, Beijing, China), R. Yu (Renmin University, Beijing, China), X. Lu, Y. Liu, M. Smidman and H.Q. Yuan (Zhejiang University, Hangzhou, China)

GRADUATE AND POSTDOCTORAL ADVISORS

Graduate advisor: R. Hilsch, University of Göttingen, Germany
 Postdoctoral advisors: G. von Minnigerode and D. K. Wohlleben, University of Köln, Germany

DIPLOMA AND DOCTORAL THESIS ADVISING

Diploma students: ≈ 120
 Doctoral students ≈ 60
 among them: H. von Löhneysen (KIT, Karlsruhe, Germany), P.A. van Aken (Max Planck Institute for Intelligent Systems, Stuttgart, Germany), D. Meschede (University of Bonn, Germany), S. Horn and P. Gegenwart (University of Augsburg, Germany), K. Gloos (University of Turku, Finland), M. Lang, J. Müller and C. Krellner (University of Frankfurt/M., Germany), H. Q. Yuan (Zhejiang University, Hangzhou, China), A. Bentien (University of Århus, Denmark), S. Friedemann (University of Bristol, UK)

Postdoctoral fellows: \approx 40

among them: N.L. Wang (Peking University, Beijing, China), D. Kaczorowski, T. Cichorek and A. Pikul (INTiBS, PAN, Wrocław, Poland), N. K. Sato (Nagoya University, Japan), S. Süllo (TU Braunschweig, Germany), S. Paschen (TU Vienna, Austria), T. Tayama (University of Toyama, Japan), F. M. Grosche (Cavendish Laboratory, University of Cambridge, UK), K. Tenya (Shinshu University, Nagano, Japan), R. Viennois (CNRS, University of Montpellier, France), C. F. Miclea (National Institute for Materials Research, Bucharest, Romania), J. Haase (University of Leipzig, Germany), Y. Tokiwa (University of Augsburg, Germany), R. Daou (CNRS, University of Caën, France)

PUBLICATIONS, PATENTS

More than refereed 900 publications, 2 patents.

SELECTED PUBLICATIONS

1. SUPERCONDUCTIVITY IN THE PRESENCE OF STRONG PAULI PARAMAGNETISM: CeCu_2Si_2
F. Steglich, J. Aarts, C. D. Bredl, W. Lieke, D. Meschede, W. Franz and H. Schäfer
Phys. Rev. Lett. **43**, 1892 (1979).
2. STRONG COUPLING BETWEEN LOCAL MOMENTS AND SUPERCONDUCTING "HEAVY" ELECTRONS IN UPd_2Al_3
N. K. Sato, N. Aso, K. Miyake, R. Shiina, P. Thalmeier, G. Varelogiannis, C. Geibel, F. Steglich, P. Fulde and T. Komatsubara
Nature **410**, 340 (2001).
3. OBSERVATION OF TWO DISTINCT SUPERCONDUCTING PHASES IN CeCu_2Si_2
H. Q. Yuan, F. M. Grosche, M. Deppe, C. Geibel, G. Spam and F. Steglich
Science **302**, 2104 (2003).
4. THE BREAK-UP OF HEAVY ELECTRONS AT A QUANTUM CRITICAL POINT
J. Custers, P. Gegenwart, H. Wilhelm, K. Neumaier, Y. Tokiwa, O. Trovarelli, C. Geibel, F. Steglich, C. Pépin and P. Coleman
Nature **424**, 524 (2003).
5. HALL-EFFECT EVOLUTION ACROSS A HEAVY-FERMION QUANTUM CRITICAL POINT
S. Paschen, T. Lühmann, S. Wirth, P. Gegenwart, O. Trovarelli, C. Geibel, F. Steglich, P. Coleman and Q. Si
Nature **432**, 881 (2004).
6. DETACHING THE ANTIFERROMAGNETIC QUANTUM CRITICAL POINT FROM THE FERMI SURFACE RECONSTRUCTION IN YbRh_2Si_2
S. Friedemann, T. Westerkamp, M. Brando, N. Oeschler, S. Wirth, P. Gegenwart, C. Krellner, C. Geibel and F. Steglich
Nature Phys. **5**, 465 (2009).

7. MAGNETICALLY DRIVEN SUPERCONDUCTIVITY IN CeCu_2Si_2
O. Stockert, J. Arndt, E. Faulhaber, C. Geibel, H. S. Jeevan, S. Kirchner, M. Loewenhaupt, K. Schmalzl,
W. Schmidt, Q. Si and F. Steglich
Nature Phys. **7**, 119 (2011).

8. THERMAL AND ELECTRICAL TRANSPORT ACROSS A MAGNETIC QUANTUM CRITICAL POINT
H. Pfau, S. Hartmann, U. Stockert, P. Sun, S. Lausberg, M. Brando, S. Friedemann,
C. Krellner, C. Geibel, S. Wirth, S. Kirchner, E. Abrahams, Q. Si and F. Steglich
Nature **484**, 493 (2012).

9. EMERGENCE OF SUPERCONDUCTIVITY IN THE CANONICAL HEAVY-ELECTRON METAL YbRh_2Si_2
E. Schuberth, M. Tippmann, L. Steinke, S. Lausberg, A. Steppke, M. Brando, C. Krellner, C. Geibel, R.
Yu, Q. Si and F. Steglich
Science **351**, 485 (2016).

10. FULLY GAPPED *d* - WAVE SUPERCONDUCTIVITY IN CeCu_2Si_2
G. M. Pang, M. Smidman, J. L. Zhang, L. Jiao, Z. F. Weng, E. M. Nica, Y. Chen, W. B. Jang, Y. J.
Zhang, H. S. Jeevan, P. Gegenwart, F. Steglich, Q. Si and H. Q. Yuan
Proc. Natl. Acad. Sci. USA **115**, 5343 (2018).