

Prof. Dr. rer. nat. Dr. h.c. mult.
Karl-Heinz Hoffmann

Chair of Applied Mathematics
Center of Mathematics, TU München
Boltzmannstr. 3, 85748 Garching, Germany

Date of birth: July 18, 1939

Education:

1961–1965	Mathematics, Physics, Univ. Freiburg
1965	Diploma in Mathematics and Physics
1968	Ph.D. Univ. München
	Habilitation, <i>venia legendi</i> in Mathematics" Univ. München

Career:

1968–1971	Assistant Prof. Univ. München
1971–1974	Associate Prof. Univ. München
1975–1981	Full Professor Free Univ. Berlin
1982–1991	Full Professor Univ. Augsburg
1992–present	Full Professor TUM
2007	Retired TUM
1998–2006	Founding Director of the interdisciplinary "center of advanced european studies and research" (caesar) Bonn
2007–present	Emeritus of Excellence TUM

Research interests:

- Mathematical Modelling and Simulation
- Numerical Mathematics and Scientific Computing
- Mathematical Material Science
- Mathematics in Life Science
- Numerical Treatment of Differential Equations
- Free Boundary Value Problems
- Optimization and Optimal Control
- Mathematics in Industry

Teaching:

- Mathematical Modelling

- Mathematical Methods in Fluid Dynamics
- Continuum Mechanics and Material Sciences
- Phase Transition Problems
- Homogenization
- Optimization and Optimal Control

Honours:

- Karl Heinz Beckurts Award for research leading to an immediate Innovation in industry
- Gottfried-Wilhelm-Leibniz-Award of the German Science Foundation (DFG)
- Member of German National Academy of Science (Leopoldina)
- Member of the Bavarian Academy of Science
- Dr. h.c. Technical Univ. Freiberg
- Dr. h.c. Univ. Augsburg
- Dr. h.c. Vietnamesische Akademie der Wissenschaften Hanoi, Vietnam
- Alwin-Walther-Medal in Applied Mathematics and Computer Sciences, Technical Univ. of Darmstadt

Selected Memberships:

- Member of GAMM (Gesellschaft für Angewandte Mathematik und Mechanik) and Society of Operations Research
- President of the German Science Council (Wissenschaftsrat) 1994-1996
- President of the German Mathematical Society (Deutsche Mathematiker Vereinigung (DMV)
- Member of the Alexander von Humboldt Foundation selection committee 1988-2000
- Member of Krupp-Foundation selection committee
- Scientific Directorate, International Conference and Research Center for Mathematics, Oberwolfach 2000-2006

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Editorial Boards:

Numerical Functional Analysis and Optimization (Marcel Dekker, New York),
 Internationale Schriftenreihe in Numerischer Mathematik (ISNM) (Birkhäuser, Basel),

Advances in Mathematical Science and Applications (Gakkotosho, Tokyo),
Interfaces in Free Boundaries: Modelling, Analysis and Computation (Oxford Univ. Press),
Mathematical Methods in the Applied Sciences (Wiley, New York)

Most Important Relevant Publications (16 selected papers): In Journals:

- [1] Control of Free Boundary Problems with Hysteresis. SIAM J. Control and Optimization 26, No. 1 (1988). Coauthor: A. Friedman.
- [2] Adaptive methods for parameter Identification in ground water hydrology. Water Resources incorp. Hydrosoft. 14, No. 5, ISSN 0309 -1708 (1991). Coauthors: P. Knabner, W. Seifert.
- [3] Differentiable dependence upon data and optimal control in a Muskat problem for immiscible fluids in porous media. Math. Applic. Comp. II, No. 1, 255 - 280 (1992)
Coauthor: Liu Xiyuan.
- [4] Parallel efficiency of domain decomposition methods. North-Holland-Amsterdam, Parallel Computing 19, 1375-1391 (1993).
Coauthor: J. Zou.
- [5] Periodic solution of the Stefan problem with hysteresis type boundary conditions. In: Manusc. math. 78, (1993) S. 179 - 199 Coauthors: A.M. Meirmanov, I.G. Götz.
- [6] Optimal Control of a Fine Structure. Appl. Math. Optim. 30, 113 -126(1994)
Coauthor: T. Roubicek.
- [7] On a one-dimensional nonlinear thermoviscoelastic model for structural phase transitions in shape memory alloys. Journal of Piff. Equations 112, No. 2, 325 - 350 (1994).
Coauthor: Zh. Chen.
- [8] On the Generation and Spreading of "Finger" Instabilities in Film Coating Processes. In: High Performance Scientific and Engineering Computing, Lecture Notes in Computational Science and Engineering. Ed.: M. Griebel, D. E. Keyes, R. M. Nieminen, D. Roose, T. Schlick (1994)
Coauthors: B. Wagner, A. Münch
- [9] Parallel Solution of Variational Inequality Problems with Nonlinear Source Terms. IMAJ. of Numer. Anal. 16. 31-45 (1996) Coauthor: J. Zou
- [10] Mathematical Study of a Model for Liquid-Vapour Phase Change in Porous Media. J. Math. Anal. Appl. (1997)
Coauthors: Shen Weixi, Zheng Songmu
- [11] Phase Transitions of Liquid-Liquid Type with Convection. Advances in Math. Sei, and Appl. 8, No. 1, 185-198 (1998)
Coauthor: V. N. Starovoitov
- [12] Homogenization of Interfaces between rapidly oscillating fine elastic structures and fluids. SIAM J. Appl. Math. 65, No. 3, 983-1005 (2005)
Coauthors: N. D. Botkin, V. N. Starovoitov

Textbooks

- [14] Numerical Mathematics.

Textbook Translation from the German by Larry Schumaker. In:
Undergraduate Texts in Mathematics: Readings in Mathematics.
New York etc: Springer-Verlag (ISBN 0-387-97494-6) xi, 422 p,(1991)
Coauthor: Günther Hämmerlin

[15] Ginzburg-Landau Phase Transition Theory and Superconductivity.
ISNM Vol. 134, pp 383, Birkhäuser-Verlag, 2001
Coauthor: Qi Tang

Patents

[16] Pluripotent embryonic-like stem cells derived from teeth and uses thereof;
Europäisches Patent Nr.: 1 456 357 (2008) Mitinhaber: N. Brenner, C. Morsczeck, J.
Schierholz, F. Zeilhofer