
Institute of Structural Mechanics
Universität Stuttgart
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Current position

Professor Emeritus of Structural Mechanics (Baustatik), Universität Stuttgart (since April 2006)

Education

Civil Engineering: Universities of Darmstadt & Stuttgart (Dipl.-Ing. 1966)
Ph.D.: Universität Stuttgart (1972)
Habilitation: Universität Stuttgart (1976)

Research interests

Computational methods in applied sciences and structural engineering.
Computational mechanics, finite element technology.
Nonlinear mechanics of thin-walled structures, structural optimization.
Material modelling, multiscale problems, fluid-structure-interaction, contact mechanics.

Career

Visiting Professor, University of California, Berkeley, USA, 1989
Chairman, Department of Civil Engineering and Geodesy, Universität Stuttgart, 1987-1988
Full Professor (C4) and Head of Institute of Structural Mechanics, Universität Stuttgart, 1983-2006
Associate Professor (C3), Universität Stuttgart, 1976 – 1982
Research fellow (post-doc, grant of German Research Foundation DFG):
Universität Stuttgart, 1974 – 1976 and University of California, Berkeley, USA, 1972-1973
Research and teaching associate (wiss. Assistent), Universität Stuttgart, 1966-1972

Honors and awards

Honorary Doctorates:

- University of Calgary, Canada: Doctor of Law h.c., 2004
- Technische Universität München: Dr.-Ing. Ehrenhalber, 2004

Member of

- Academy of Science and Literature at Mainz, Germany (since 1997)
- Academia Europaea (since 2000)
- Heidelberg Academy of Science (since 2001)
- German National Academy of Science and Engineering - acatech (since 2003)
- Austrian Academy of Sciences (since 2004), corresponding member
- Braunschweigische wissenschaftliche Gesellschaft (BWG) (since 2004) corresp. member
- US National Academy of Engineering (since 2008), Foreign Associate

Tsuboi Price, Int. Ass. Shell and Spatial Structures (IASS), 1991

Eric Reissner Medal, Int. Congress of Engineering Sciences, 1995

Computational Mechanics Award of International Association of Computational Mechanics (IACM), 2002

Fellow of International Association of Computational Mechanics, 2002

Pioneer's Award: Space Structures Research Center of University of Surrey, UK, 2002

Congress Medal (Gauss-Newton Medal) IACM, 2008

Torroja Medal International Association for Shell and Spatial Structures (IASS), 2009

Selected publications (max. 5)

Bathe, K.-J., Ramm, E., Wilson, E.L.: Finite Element Formulations for Large Deformation Dynamic Analyses. *Int. J. Numerical Method in Engineering* 9 (1975) 353-386.

Ramm, E.: Strategies for Tracing Nonlinear Response Near Limit Points. 2nd US-Europe Workshop "Nonlinear Finite Element Analysis in Structural Mechanics" (eds. W. Wunderlich, E. Stein, K.-J. Bathe), Bochum, 1980.

Cirak, F., Ramm, E.: A-posteriori Error Estimation and Adaptivities for Linear Elasticity Using the Reciprocal Theorem. *Computer Methods in Applied Mechanics and Engineering* 156 (1998) 351-362.

Ramm, E., Wall, W.A.: Shell Structures – A Sensitive Interrelation between Physics and Numerics. *Int. J. Numerical Methods in Engineering* 60 (2004) 381-427.

Bischoff, M., Wall, W.A., Bletzinger, K.-U., Ramm, E.: Models and Finite Elements for Thin-walled Structures. In: *Encyclopedia of Computational Mechanics* (eds. E. Stein, R. de Borst, T.J.R. Hughes) Vol. 2: Solids and Structures, pp. 59-137, Wiley, 2004.

Professional activities

Editorial boards:

Member of EB of 14 international journals, among them

- International Journal for Numerical Methods in Engineering
- Archives of Computational Methods in Engineering
- International Journal for Numerical Methods in Biomedical Engineering
- Computer Methods in Applied Mechanics and Engineering
- Finite Elements in Analysis and Design
- International Journal for Numerical and Analytical Methods in Geomechanics
- Engineering Structures

Services in scientific community (selection):

- Selection Committees of German Academic Exchange Council (DAAD), 1975 – 1993
- Initiator and Coordinator of Integrated Foreign Study Program with University of Calgary (since 1980)
- Member of Executive Council of Int. Association for Shell and Spatial Structures (IASS) (1993 – 2001), since 2001 Advisory Member
- Evaluation Committee of German Research Foundation (DFG) for Collaborative Research Centers (1994 – 1999)
- President of German Association for Computational Mechanics (GACM) (2000 - 2008)
- Member of Managing Board of European Community of Computational Methods in Applied Sciences (ECCOMAS) (since 2000)
- Member of Executive Council of International Association for Computational Mechanics (IACM) (since 2001)
- Vicepresident of ECCOMAS (since 2005)

Other relevant information

Workshops and Conferences:

Main and Co-Organizer:

- Buckling of Shells, Stuttgart, 1982
- Baustatik-Baupraxis 3, Stuttgart 1987
- World Conference on Computational Mechanics, WCCM II, Stuttgart, 1990
- Finite Elemente in der Baupraxis – FEM '95, Stuttgart, 1995
- Shell and Spatial Structures (IASS), Stuttgart, 1996
- European Conference on Computational Mechanics ECCM '99, München. 1999
- Computation of Shell and Spatial Structures, IASS IACM 2005, Salzburg, 2005

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Scientific Committees:

Member in scientific committees and numerous conferences, e.g.

- US – National Congress on Computational Mechanics (USNCCM)
- Computational Plasticity (COMPLAS)
- International Association for Shell and Spatial Structures (IASS)
- European Conference on Computational Mechanics (ECCM)
- European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS)
- World Conference on Computational Mechanics (WCCM)

Publications

ca 325 publications , among those 140 in refereed journals

Plenary Lectures (selection since 2000):

- 4th Euromech Solid Mechanics Conference, Metz, France, 2000
- European Congress Comp. Methods in Applied Sciences and Engineering (ECCOMAS 2000), Barcelona, Spain, 2000
- 2nd European Conference Comp. Mechanics (ECCM 2001), Cracow, Poland, 2001
- 6th US National Congress Comp. Mechanics, Dearborn, USA, 2001
- 5th World Congress Comp. Mechanics (WCCM V), Vienna, Austria, 2003
- Computational Plasticity (COMPLAS), Barcelona, Spain, 2005, 2007, 2009
- Comp. Modelling of Concrete Structures (EURO-C), Mayrhofen , Austria, 2006
- Computational Methods in Mechanics Conference (22nd IACMM), Israel 2007
- ECCOMAS Multidisciplinary Jubilee Symposium on New Comput. Challenges, Vienna 2008
- 1st African Conf. on Computational Mechanics AFRICOMP, South Africa 2009
- IASS Symposium, Valencia, Spain 2009
- Particles, Barcelona, Spain 2009

Editorial Works:

Ramm, E.: "Buckling of Shells", Springer, 1982.

Ramm, E., Schunck, E.: Heinz Isler Schalen. Krämer, Stuttgart 1986.

Ramm, E.: Non-linear Plate and Shell Analysis. Int. J. Num. Meth. Engng., Vol. 37 (1994).

Ramm, E., Wall, W.A.: Computational Methods for Shells. Computer Methods in Applied Mechanics and Engineering, Vol. 194 (2005).

Textbooks:

"Structural Mechanics" (in German "Baustatik – Baudynamik") on 13 different topics.

Ph.D. students:

Examiner of 134 Ph.D. dissertations and habilitations, among them 53 own Ph.D. students

Consulting:

- Founder & Partner, Consulting Office DELTA-X for Structural Mechanics and Structural Engineering, Stuttgart (since 1988)
- Government Certified Control Engineer (Prüfingenieur für Baustatik) 1996 -2008