

# **KLAUS-JÜRGEN BATHE**

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Professor Klaus-Jürgen Bathe, a citizen of Germany, earned his B.Sc. degree from the University of Cape Town, South Africa, his M.Sc. degree from the University of Calgary, Canada, his Ph.D. degree from the University of California, Berkeley, all these degrees in the Departments of Civil Engineering, and the D.Sc. degree from the University of Cape Town. He joined the Mechanical Engineering faculty, MIT, in 1975. Professor Bathe teaches and conducts research in the area of mechanics and computational engineering.

Professor Bathe's research focuses on advancing computational procedures for the analysis of solids and structures, fluids, electromagnetics and multiphysics problems with emphasis on general applicability, reliability and efficiency. The pioneering methods developed by Professor Bathe and his students are extensively used throughout the world in commercial and academic computer programs. Some basic contributions are the design of efficient finite element programs, the subspace iteration method for frequency calculations, large displacement and large strain formulations, shell finite elements, contact solution techniques, methods for inelastic analysis, solution algorithms for heat transfer, fluid flows and fluid-structure interactions, and time integration schemes for transient analyses.

The source codes of the computer programs SAP IV and NONSAP developed by Professor Bathe have offered fundamental designs of finite element programs that have been used by thousands of students in graduate theses and many research and commercial finite element systems. The book 'Finite Element Procedures' by Professor Bathe has been widely accepted as a standard reference.

Professor Bathe was Associate Head and Head of the Division of Mechanics and Materials, Mechanical Engineering Department, MIT, 1985 –1991.

Professor Bathe is the Founder of the company ADINA R & D, Inc., co-editor of the Journal Computers & Structures, Editor of the Springer Book Series on Computational Fluid and Solid Mechanics, and is on the editorial boards of many journals. Professor Bathe is an ISI highly-cited researcher and was a member of the Science Council of Germany, 2006 – 2013.

He authored 34 video-lectures entitled Finite Element Procedures for Solids and Structures produced at MIT, he chaired twelve bi-yearly MIT Conferences on Nonlinear Finite Element Analysis and, since 2001, chairs the bi-yearly MIT Conferences on Computational Fluid and

Solid Mechanics.

Professor Bathe has been widely honored for his teaching and research. Among the awards he received are the MIT Graduate Student Council Teaching Award, MIT School of Engineering Award for Distinguished Teaching, MIT Den Hartog Distinguished Educator Award, the Walter L. Huber Research Prize from the ASCE, the Gustus L. Larson Award from the ASME and the Pi Tau Sigma Society, a U.S. National Academy of Engineering Award, and honorary doctorates from the Technical University of Darmstadt, Germany, Slovak Academy of Sciences and Technical University of Zilina, Slovakia, Technical University of Rzeszow, Poland, Technical University of Madrid, Spain, University of Bucharest, Romania, University of Miskolc, Hungary, University of Buenos Aires, Argentina, and the University of Cape Town, South Africa.

## **Publications of Professor K.J. Bathe**

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## Computer Programs

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