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PRESS RELEASE

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Dr. J. Tinsley Oden, Director of the Institute for Computational Engineering and Sciences (ICES) at The University of Texas at Austin, Receives Honda Prize 2013 for Contributions in Computational Mechanics

The Honda Foundation, a public-interest incorporated foundation created by Honda Motor's founder Soichiro Honda and his younger brother Benjiro Honda and currently headed by Hiroto Ishida, is pleased to announce that the Honda Prize 2013^{*1} will be awarded to Dr. J. Tinsley Oden for his role in establishing the field of computational mechanics. The field has enabled the development of computer simulation technology used across industry and research today. Dr. Oden is the Director of the Institute for Computational Engineering and Sciences (ICES) and the Associate Vice President for Research at The University of Texas at Austin. He is the 34th laureate of the Honda Prize.

Dr. Oden is widely credited with the early development of computational mechanics, a new discipline that integrates mathematics, computer science, physics and applied mathematics to solve problems in science and engineering. He has contributed to the development of computational methods for analyzing non-linear phenomena in continuum mechanics, and is a recognized expert in the finite element method, a broad and powerful mathematical and computational methodology. He is also noted for developing mathematical estimates of errors in computer simulations, and ways to systematically reduce and control such error. Today, these subjects form the foundation of computational engineering and science, a discipline impacting science, medicine and engineering, with applications including manufacturing, disaster prevention, drug design, surgery, and climate and weather prediction.

Dr. Oden's early work led to the creation of the International Association for Computational Mechanics (IACM), an international federation of over 30 other scientific organizations dedicated to computational mechanics, including the Japan Society for Computational Engineering and Sciences (JSCES), and the Japan Association for Computational Mechanics (JACM).

Dr. Oden is the director of the Institute for Computational Engineering and Sciences, a leading research center at The University of Texas at Austin in the United States of America. The work of Dr. Oden and his colleagues at the institute has significantly advanced several key areas of science and technology, including manufacturing, where optimization of the manufacturing process has helped reduce cost and time to market while also emphasizing product quality and safety. Similar computer simulations developed at the institute are used in medicine and biology, and are paving the way for patient-specific therapies for cardiovascular surgery, artificial heart valves and stent design, cancer treatment and drug design. In addition, the institute is also involved in modeling climate change, energy systems, new materials and improved transportation systems.

Dr. Oden's most recent work focuses on the theory and development of "multiscale" models that bridge the influence of events at many scales, from that of atoms and electrons to full-scale systems, such as machines, aircrafts and automobiles. He is also a leader in "predictive science," in which uncertainty in observational data and model parameters is estimated using mathematical statistics and used to determine the accuracy of computational predications.

Dr. Oden refers to computational science as the "third pillar" of scientific inquiry, standing beside theoretical and experimental science. Computational science serves as a new paradigm for acquiring knowledge and informing decisions important to humankind.

Established in 1980, the Honda Prize is awarded annually to an individual or group to recognize accomplishments in the field of ecotechnology^{*2}, which works to advance human achievement while concurrently preserving the natural environment. These days, computer simulation technology is widely utilized in various fields, from manufacturing to medicine, to save time and resources, while improving product quality and safety. This result is among the goals of eco-technology. Therefore, Dr. Oden's contributions to the field are appropriate for the Honda Prize recognition.

The 34th award ceremony for the Honda Prize will be held at the Imperial Hotel in Tokyo on November 18, 2013. In addition to the prize medal and certificate, the laureate will be awarded 10 million yen.

*1 Honda Prize: Japan's first international science and technology award inaugurated in 1980.

*2 Ecotechnology: Coined from "ecology" - the house of civilization - and "technology." It has been put forward since 1979 as the guiding philosophy for a better symbiosis between technology-driven civilization and nature.

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You may also contact Honda Motor's Public Relations Department via phone at +81-3-5142-1512.

Dr. J. Tinsley Oden

Director of the Institute for Computational Engineering and Sciences (ICES)
at The University of Texas at Austin

Born: December 25, 1936 in Alexandria, Louisiana, USA (USA citizenship)

Education and Training

1962: Ph.D., Oklahoma State University, Engineering Mechanics

1960: M.S., Oklahoma State University, Civil Engineering

1959: B.S., Louisiana State University, Civil Engineering

Honorary Degrees:

Ohio State University	Honoris Causa	2010
Ecole Normale Supérieure Cachan (ENSC), France	Honoris Causa	2006
The University of Texas at Austin	Presidential Citation	2004
Cracow University of Technology, Poland	Honoris Causa	2001
Faculté Polytechnique de Mons, Mons Belgium	Honoris Causa	2000
Technical University of Lisbon, Lisbon, Portugal	Honoris Causa	1987



Employment History

University of Texas-Austin, Director, Institute of Computational Engineering and Sciences (ICES), (TICOM 9/1974 – 8/1993, TICOM 9/1993 – 2/2003) 3/2003 - present.

University of Texas-Austin, Associate Vice President for Research, 3/2003 – present.

University of Texas-Austin, Professor, Computer Science Department, 2011 - present.

University of Texas-Austin, Professor, Mathematics Department, 9/1981 - present.

University of Texas-Austin, Professor, Aerospace Engineering and Engineering Mechanics Department, 9/1973 – present.

University of Alabama-Huntsville, Assistant Professor and Professor in Engineering Mechanics, 9/1964 -8/1973.

General Dynamics, Senior Structures Engineer, Research Department, Fort Worth, 1963-64.

Oklahoma State University, Instructor in Applied Mechanics, Assistant Professor in Civil Engineering, 1961-63.

Louisiana State University, Teaching Assistant, 1959.

Biographical Sketch

J. Tinsley Oden is world renowned for his contributions in establishing and developing the field of computational mechanics, which applies mechanics, mathematics, and computer science to create computer models of the physical world. Such simulations are used in fields as diverse as medicine, material engineering, energy exploration, and climate science. As the Director of the Institute of Computational Engineering and Sciences, Dr. Oden's current research is in multi-scale "adaptive" modelling, with a focus on semiconductor modelling and cancer treatment. For his scientific contributions, Dr. Oden was awarded the Theodore von Karman Medal of American Society for Civil Engineers in Engineering Mechanics in 1992, the John von Neumann Medal of U.S. Association for Computational Mechanics in 1993, the Newton-Gauss Congress Medal of International Association for Computational Mechanics in 1994, and The Stephen P. Timoshenko Medal of American Society of Mechanical Engineers in Applied Mechanics in 1996, among others.

Publications

Mechanics of Elastic Structures: McGraw-Hill, New York City, 1967

Finite Elements of Nonlinear Continua: McGraw-Hill, New York City, 1972

Finite Elements vol.1 to 6: (with E.B Becker and Graham F. Carey) Prentice-Hall, Englewood Cliffs, 1981

Applied Functional Analysis, 2nd ed.: (with L. F. Demkowicz) CRC Press, Boca-Raton, 2010

An Introduction to Mathematical Modelling: Wiley, Hoboken, 2011

(selected among 800 publications, including 27 books)