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# Preface

Professor Takeo Yokobori, the Founder President of ICF, has passed away on 9 October 2017, at 100 years old. We extend our heartfelt condolences to his family and, in particular, to his son and our colleague Professor ToshimitsuYokobori, and we remember his outstanding achievements. He was born in 1917, graduated at the Department of Aeronautics of Tokyo Imperial University in 1941, and was employed at the Aviation Research Institute of Tokyo Imperial University.

He became Associate Professor at Tohoku University in 1955 and obtained a Doctor of Science degree from Tokyo University in 1956. He became Professor of Tohoku University at the Faculty of Engineering in 1957 and became Emeritus Professor of Tohoku University in 1981. After that, he took office as the Dean of the Department of Science and Engineering of Teikyo University and also took office as Director of Teikyo University and became Emeritus Professor of Teikyo University in 2009.

At first, he conducted research on aircraft engines at Tokyo University. After the Second World War, he shifted his research interest toward the strength of materials. He has named the research on strength, fracture and fatigue of materials "Zairyo Kyoudo Gaku" (in Japanese), which harmonized material properties, metallurgy and solid mechanics and originally systematized this research field. The target of his research work covered brittle fracture, fatigue, high temperature fracture, and biomaterials. Especially, he was the first who established multiscale mechanics harmonizing micro-material structures worldwide, such as dislocation groups and grain size, with the presence of cracks. His theories have been cited and used many times overseas and are called "Yokobori's theory" and "Yokobori's law". He has also proposed to call his approaches "Fractology", "Combined micro and macro fracture mechanics", "Interdisciplinary approach" and "Holistic". "Holistic" is translated to "The Whole Theory". He considered it as the most suitable philosophical term.

For these research achievements, he was awarded the Japan Academy Prize (1971) and was appointed a foreign member of the U.S. Academy of Engineering (1981), and a Japan Academy member (1996). Furthermore, he was honored as the Second Class Order of the Sacred Treasure (1999), and was the winner of the cultural merits prize in Japan (2000).

He published several books in Japanese [Zairyou Kyoudo gaku, gihodo pub.1955, translated into English and edited by J. D. Crisp as Takeo Yokobori: The Strength, Fracture and Fatigue of Materials, Noordhoff, Groningen, The Netherlands, 1965], [The first edition of Zairyoukyoudo gaku Iwanami pub (1964), translated into English and edited by J. D. Crisp as Takeo Yokobori: An Interdisciplinary Approach to Fracture and Strength of Solids, Wolters-Noordhoff Publishing, The Netherlands (1968)] and [The second edition of this book (1974) translated into Russian and edited by G.C. Pisarenko (1978)] .

He was furthermore elected as honorary member of the Japan Society of Mechanical Engineers, Japan Institute of Metals and Materials, and Japan Society of Materials Science. He was also elected as honorary chairman of the Japan Society for Biomaterials. He has also established the International Congress on Fracture (ICF) in 1965 and was awarded as the Founder President of ICF. In 2009, "The Takeo Yokobori Gold Medal" was established by ICF.

As mentioned above, Professor Takeo Yokobori has made many remarkable achievements concerning the strength of materials throughout his career, and contributed internationally to the developments of fracture mechanics. The whole International Community of Fracture Mechanics remembers his high virtues and generous services, and sincerely pray for his Soul.

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