THE UNIVERSITY OF HONG KONG

DEPARTMENT OF CIVIL ENGINEERING

SEMINAR

Origami-based Deployable Structures and Mechanical Metamaterials

Professor Jianguo Cai
School of Civil Engineering
Southeast University, China

Date: July 23, 2025 (Wednesday)
Time: 2:30 p.m. – 3:30 p.m.
Venue: Room 612B, 6/F Haking Wong Building, The University of Hong Kong

Abstract
This report delves into the research and application of origami membrane structures and energy dissipation structures. Membrane structures find extensive use in large-scale antennas, solar sails, flexible battery arrays, and other fields. The significant size differences between their unfolded application states and their folded packaging states create a pressing need for efficient storage solutions. Folding technology offers a viable solution for efficient and orderly storage. Moreover, a new series of origami honeycomb structures have been proposed and applied in various impact scenarios. The report also introduces related research on kirigami deployable structures, highlighting their innovative applications and benefits.

About the Speaker
Jianguo Cai is the Chief Young Professor at Southeast University and the Deputy Director of the National Prestress Engineering Research Center. He is the member of Executive Council of IASS. His research focuses on origami/kirigami deployable structures, which can change their shapes as needed to perform various functions. He has invented a series of flexible, unfoldable structures with high stowage ratios and developed methods for analyzing their folding processes. Additionally, he has created high-performance, origami-inspired impact-resistant and shock-absorbing structures, along with methods for their fabrication. Supported by projects such as the National Natural Science Foundation for Outstanding Young Scholars and the National Key Research and Development Program of China, Jianguo Cai has published more than 250 journal papers, authored three monographs, secured 69 national invention patents, and received numerous accolades.

- ALL ARE WELCOME -

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