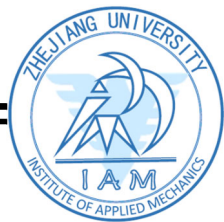




Applied Mechanics, Zhejiang University



SEMINAR



SERIES

应用力学研究所/浙江省软体机器人与智能器件研究重点实验室/
浙江大学软物质科学研究中心/柔性电子科技联盟 联合学术报告会

The Power of Snap-Through: Jumping, Morphing, and Beyond

Mingchao Liu

School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore
Department of Mechanical Engineering, University of Birmingham, Birmingham, UK

报告摘要

Snap-through is a fascinating phenomenon in various fields, including engineering, physics, and biology, where a system transitions rapidly and suddenly from one stable configuration to another through a highly nonlinear response. The power of snap-through instability lies in its ability to generate various interesting and useful behaviors, such as jumping, morphing, and energy harvesting, to name a few. This presentation will begin with a brief introduction to the concept of snap-through, discussing its characteristics and some of the physical systems in which it can occur. I will then move on to discuss the unique power of snap-through in enabling jumping and morphing in systems. Through exploiting the sudden, nonlinear behavior of snap-through, engineers and scientists have been able to design a range of functional structures that can jump to great heights, rapidly change shape, and even adapt to changing environments in real-time. Throughout the presentation, several examples of snap-through-based jumping and morphing systems will be showcased, accompanied by an exploration of the underlying physics and engineering principles that make these systems possible. Overall, this seminar will provide a comprehensive overview of the power of snap-through and its potential applications, highlighting the exciting new avenues of research and development in this field.

报告人简介



Dr. Mingchao Liu is currently a Presidential Postdoctoral Fellow at Nanyang Technological University (NTU) in Singapore and an Assistant Professor at the University of Birmingham in the UK. Before moving to NTU, He was a Newton International Fellow at the Mathematical Institute, University of Oxford, sponsored by the Royal Society from 2018 to 2021. He received his Ph.D. in Solid Mechanics from Tsinghua University in 2018, and B.Eng. in Engineering Mechanics from Shandong University in 2013. He was also an Endeavor Research Fellow at the University of Sydney in 2017. His current research is mainly focused on the mechanics of slender structures, and its applications in the design of shape-morphing structures and mechanical metamaterials, as well as the modelling of soft robots.

时间: 2023年4月27日(周四) 15:00-16:00

地点: 玉泉校区教 12-214

欢迎大家光临!