



UNIVERSITY
OF TRENTO - Italy
Department of Physics

Prof. Diego Misseroni

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2024, September 25 – 2:00 p.m., Room A204 – Polo Ferrari 1

The Fusion of Origami Art and Engineering Innovation

Abstract

This seminar explores the captivating fusion of ancient origami art with cutting-edge engineering, highlighting the transformative impact of folding techniques on modern technology. It begins by tracing the origins of origami and demonstrating how its intricate folding patterns provide a flexible and adaptable framework for fine-tuning the mechanical properties of man-made materials and structures. The seminar offers a comprehensive understanding of the rapidly evolving field of origami engineering, covering foundational theories, advanced simulation tools, manufacturing techniques, and testing protocols that push the boundaries of conventional engineering. Additionally, it spotlights groundbreaking research on origami-based designs, such as the Trimorph and Kresling patterns, which are driving innovation in fields like soft robotics and mechanical computing. Real-world applications—including deployable structures, robotics, medical devices, programmable matter, vibration control, mechanical computing, and shape-shifting functions—will also be showcased, demonstrating how origami-inspired designs are revolutionizing engineering and opening new frontiers in technology.

Short Bio

Diego Misseroni is a Full Professor of Space Structures at the University of Trento, Italy. He obtained his PhD in "Structural and Solid Mechanics" from the University of Trento in 2013. In 2014, he was Marie Curie experienced researcher at the University of Liverpool, UK. In 2023, he was a Fulbright visiting scientist at the School of Engineering and Applied Science, Princeton University. Dr. Misseroni has received several awards, including the 2024 Thomas J.R. Hughes (ASME) Young Investigator Award, an ERC Consolidator Grant, the 2022 Extreme Mechanics Letter (EML) Young Investigator Award, a Fulbright fellowship, the 2022 Zwick Roell Science Award, the Paul Roell Medal, and the 2017 AIMETA Junior Prize. His extensive research interests span the Mechanics of Solids, Materials, and Structures, encompassing architected materials, metamaterials, and origami engineering. Additionally, he delves into flexible structures, buckling phenomena, and instabilities of structures undergoing large deformations.

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