

Challenges in Mechanics

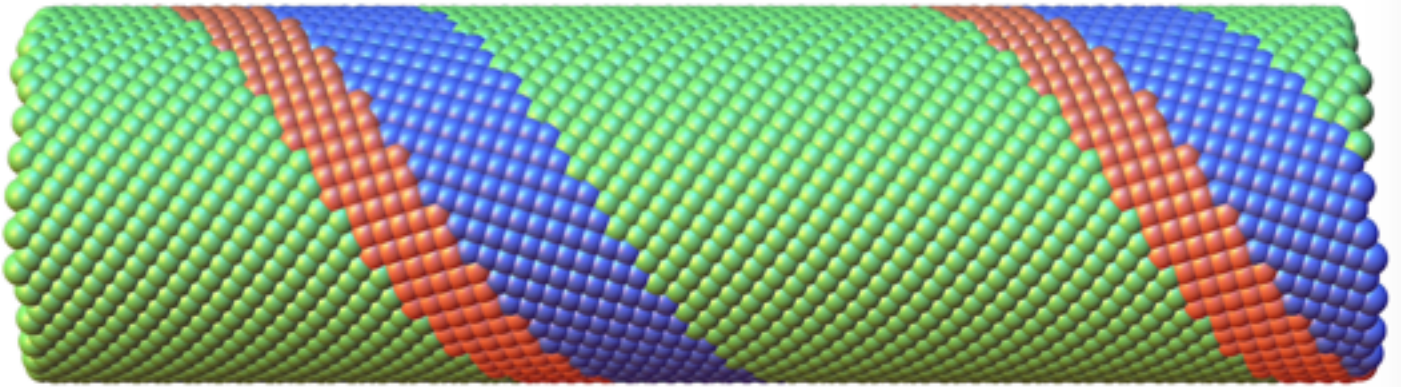
a series of seminars between Pisa and Roma

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Atomistically inspired origami

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Abstract

World population is growing approximately linearly at about 80 million per year. As time goes by, there is necessarily less space per person. Perhaps this is why the scientific community seems to be obsessed with folding things. We present a mathematical approach to “rigid folding” inspired by the way atomistic structures form naturally. Their characteristic features in molecular science imply desirable features for macroscopic structures, especially 4D structures that deform. Origami structures, in turn, suggest an unusual way to look at the Periodic Table.

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The series of seminars Challenges in Mechanics aims to bring together researchers from diverse backgrounds in structural mechanics, applied mathematics, and materials science. Emphasis will be given to rigorous mechanical theories, and the mechanical design of new materials and structures will also be explored. The series is organized in 6 seminars to be held at the Department of Structural and Geotechnical Engineering (Sapienza Università di Roma), at the Department of Civil and Industrial Engineering (Università di Pisa) and at the Institute of BioRobotics (Scuola Superiore Sant’Anna di Pisa). **Organisers:** Antonio De Simone (a.desimone@santannapisa.it), Paola Nardinocchi (paola.nardinocchi@uniroma1.it), Roberto Paroni (roberto.paroni@unipi.it).