

May 15, 2024 – 4:00pm-6:00pm

May 16, 2024 – 10:00am-12:00pm, 4:00pm-6:00pm

May 17, 2024 – 10:00am-12:00pm

Prof. Cesare Davini

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Some topics in continuum mechanics: crystals and foams

Continuum mechanics has a long history of successes and has given fruits in manifold areas of technics and science. In particular, it has provided a paradigm to model various phenomena of the physical world as they are perceived at the macroscopic level, prompting the study of specific mathematical problems, general solutions and affordable approximation techniques. In the last part of the past century, though, within the continuum mechanics community there caught on a special interest for themes new and different. In particular, the scrutiny of reality became finer and the attention started being addressed to certain microscopic aspects of the mechanics of materials that do have effects at the macroscopic level. An important contribution to this change of perspective was given by an article of Ericksen, published in 1977, that highlighted the role of molecular elasticity and stability in certain anelastic behaviours of materials. This change of perspective has had various consequences. In particular, it has undermined some cornerstones of continuum mechanics, drawing attention to some of its limits. At the same time, it has broadened the horizon and opened the way to the study of new problems such as the modeling of a new class of materials (e.g. cellular materials, honeycombs, foams, nano-materials) and the study of growth in living tissues. The aim of these lessons is to give an account of some topics that have been faced within the framework of this change of perspective.

Program:

https://phd.uniroma1.it/web/course---some-topics-in-continuum-mechanics-crystals-and-foams_ns5974EN_EN.aspx

Registration form:

<https://forms.gle/tT2Hofeh4PE8aow57>