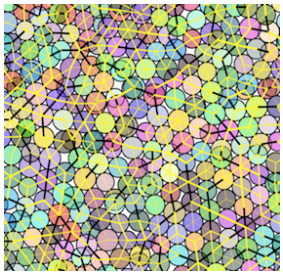

ID de Contribution: **34** Type: **Non spécifié**

From Metamaterials to Machine Materials

vendredi 17 juin 2022 11:30 (1 heure)

The architecture of a material is crucial for its properties and functionality. This connection between form and function is leveraged by mechanical metamaterials, whose patterned microstructures are designed to obtain unusual behaviours.In the first lecture I will focus on metamaterials with unusual bulk properties such as negative response parameters, multistability or programmability. I will explain the basic mechanisms that underlie these properties, touching upon concepts such as mechanisms, non-affinity, and elastic instabilities. In the second lecture I will focus on machine materials, metamaterials that are spatially or sequentially heterogeneous. I will discuss shapemorphing and self folding, and introduce recent ideas on pathways, hysterons and mechanical information processing.

Literature: Bertoldi K, Vitelli V, Christensen J, van Hecke M., Flexible mechanical metamaterials. Nature Reviews 2, 17066 (2017).

Orateur: Prof. VAN HECKE, Martin (Leiden University)