

## Séminaire

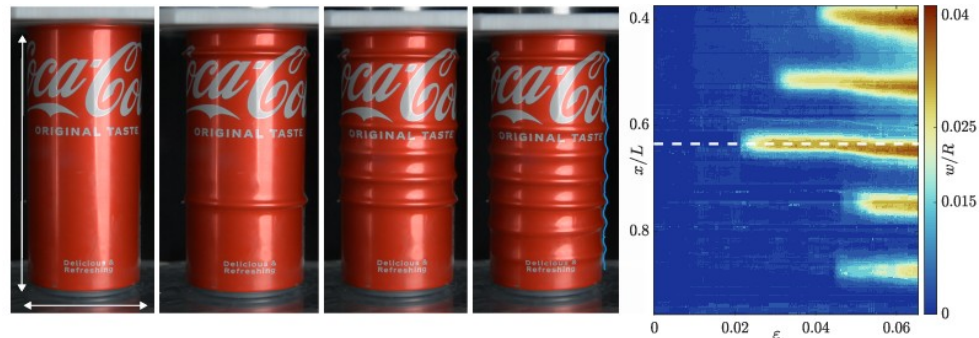
Mardi 7 octobre 2025 à 10h30  
Amphithéâtre Henri Benoît

# Draga Pihler-Puzovic

Physics of Fluids and Soft Matter Group  
University of Manchester, UK

## Exploring instabilities in slender structure: what does soft microfluidics have to do with "soda forming"?

The beauty of mechanics is that it work on multiple scales and often links disparate phenomena which appear to have little in common with each other. In this talks, we explore two types of buckling in thin cylinder-like structures, that of interest in fields as diverse as bacterial growth and rocket launching. First, we show the effect of inflation on the swelling-induced wrinkling of thin elastic membranes. Using a combination of experiments and modelling, we demonstrate that such inflation can be used as a control mechanism in the manufacture of patterned microchannels in lab-on-chip applications. Next, we study compression of a beverage can, mostly filled with a liquid. When uniaxially compressed empty cylinders buckle, they typically form periodic structures that break both axial and radial symmetry. By contrast, our liquid-filled cylinders buckle axisymmetrically. The resulting ring buckles are localised and appear sequentially, eventually filling the entire can surface. The final periodic pattern has a predictable wavelength that scales with the shell thickness and radius, following the same scaling observed in the microfluidics channels. However, the fine details of these pattern formation phenomena are different, and we will discuss why the corresponding physics is still of interest.



Les personnes souhaitant rencontrer S. Pihler-Puzovic sont priées de prendre contact Aurélie Hourlier-Fargette.