



Contribution ID: 17

Type: **not specified**

Stress-Free Morphing

Thursday, 23 October 2025 14:00 (1 hour)

We study the morphing of 3D objects within the framework of non-linear elasticity with large distortions. A distortion field induces a target metric, and the configuration which is effectively realized by a material body is the one that minimizes the distance, measured through the elastic energy, between the target metric and the actual one.

Morphing through distortions might have a paramount feature: the resulting configurations might be stress-free; if this is the case, the distortions field is called compatible. We maintain that the morphing through compatible distortions is a key strategy exploited by many soft biological materials, which can exhibit very large shape-change in response to distortions controlled by stimuli such as chemicals or temperature changes, while keeping their stress state almost null.

Primary author: TERESI, Luciano (Università degli Studi Roma TRE)

Presenter: TERESI, Luciano (Università degli Studi Roma TRE)