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Shape transitions in frustrated elastic ribbons

Friday, 24 October 2025 10:00 (1 hour)

Ribbons are elastic bodies that are thin and narrow. Many ribbons in nature, from seed pods to molecular assemblies, have a non-trivial internal geometry, making them incompatible with Euclidean space. In many cases, this results in shape transitions between narrow and wide ribbons with the same internal geometry. In this talk we will show how this phenomenon can be explained mathematically in terms of the Gauss-Codazzi equations from surface theory. We will present some recent rigorous results joint with Cy Maor (Hebrew University of Jerusalem) and discuss some open questions.

Presenter: MORA, Maria Giovanna (Università di Pavia)