

FMfI2023 Poster Session

Name	Edoardo Fabbrini
Affiliation	Graduate School of Mathematics, Kyushu University, Japan
Poster title	Energy scaling factors of systems of disclinations: the periodic case
Abstract	<p>I focus on systems of disclinations by analysing the associated effective energy regimes depending on geometry aspect ratios and mutual distances. Specifically, I target disclination dipole and quadrupoles under the assumption of linear hyper-elastic material with no external loads in plane strain conditions. Field equations (mechanical equilibrium and kinematic incompatibility) are written in terms of the Airy stress function. My main result is the full characterization of configurations of disclination quadrupoles in terms of existence of a minimal energy configuration and optimal geometry for both isotropic and transverse-isotropic hyperelastic materials.</p>
Short Bio	<p>Born in Rome (Italy), after a bachelor in mechanical engineering and a master's degree in aeronautical engineering, both obtained from Roma Tre University, I started a PhD in applied mathematics at Kyushu University working under the supervision of Prof. Pierluigi Cesana. My academic interests reside on studying mathematical models of plastic deformation occurring in metals and on the design of functional materials.</p>