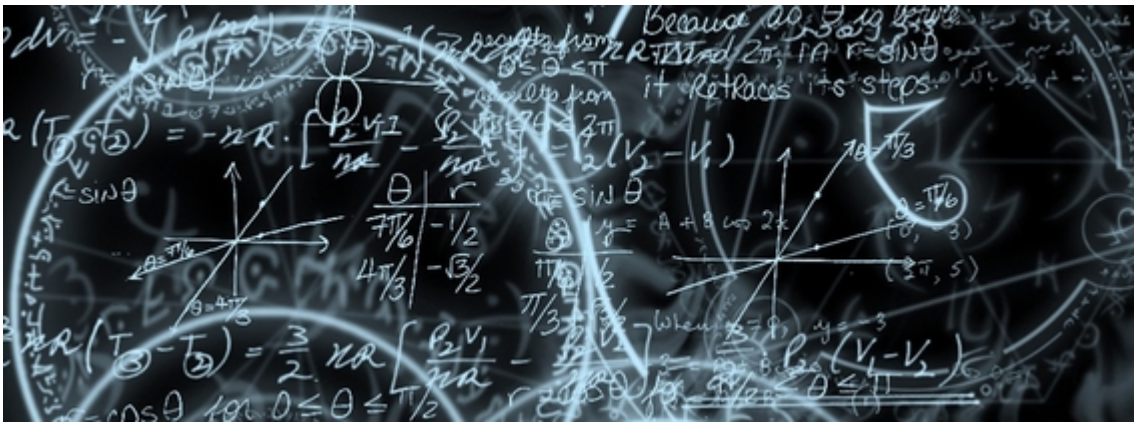
SEMINARI DI DIPARTIMENTO - 22/01/2025 PROF.GIACOMO CANEVARI ALLE ORE 14:00 IN SALA CONSIGLIO



Mercoledì 22 gennaio ore 14.00 in Sala Consiglio

Speaker: Giacomo Canevari
vincitore, ex aequo, del concorso Professore di I fascia SSD MAT/05 - CODICE CONCORSO 2024_PO comma4ter_005

Title: A variational approach to topological defects in materials science

Abstract: *Topological defects in condensed matter systems are, loosely speaking, localised structures - carrying a topological invariant - where the typical order of the system is broken. In this talk, we take a variational approach to defects by considering a (simplified) free energy functional, sharing some features with the Ginzburg-Landau model for superconductivity and the Landau-de Gennes model for nematic liquid crystals. In a specific asymptotic regime of parameters, minimisers of the model converge to manifold-valued maps with singularities. Under suitable topological assumptions on the target manifold, we will discuss the convergence of minimisers and provide a variational characterisation of the singularities that appear in the limit, in terms of measure-geometric objects. If time permits, we will briefly mention generalisations, including problems in non-Euclidean geometries or discrete models.*

VEDI ANCHE

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