

Phase Transitions with Bounded Index: Parallels to De Giorgi's Conjecture

Enric Florit-Simon

ETH Zurich (Switzerland)
ENRIC.FLORIT@MATH.ETHZ.CH

Abstract

We will discuss recent progress on the regularity for stable [1] and finite Morse index [2] solutions to the Allen–Cahn equation. The focus will be on the connections (or, perhaps more surprisingly, the lack thereof) with minimal surface theory and two influential conjectures of De Giorgi and Yau.

References

- [1] E. Florit-Simon and J. Serra, *On stable solutions to the Allen–Cahn equation with bounded energy density in $\mathbb{R}^4$* , arXiv:2509.02739.
- [2] E. Florit-Simon, *Phase transitions with bounded index: Parallels to De Giorgi's conjecture*, arXiv:2602.03136.