

25 - 27 September 2019 – GRK Autumn workshop

Betti Hartmann (São Paulo, Brazil / Bilbao, Spain)

Vortices/Strings with internal structure

Abstract

Line-like topological defects appear in many areas of physics. In high energy physics (e.g. cosmology), they are often referred to as "(cosmic) strings", while in low energy physics (e.g. condensed matter physics) the name "vortices" is frequently used. Several field theoretical models exist that describe these defects and have an obvious advantage over simple 1-dimensional models: they allow additional, internal structure. This internal structure can e.g. be given in the form of charge, current or moduli and modifies the physical properties of the line-like defects.

In this talk, I will first review the field theoretical models that describe vortices/strings. Then, I will explain how additional structure adds interesting new physics. Finally, I will discuss recent results that demonstrate that this internal structure possesses a richer spectrum than previously thought and what these new findings imply for physical applications.