



PHYSICS AND ASTRONOMY SEMINAR

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“Generalised global symmetries in field theory and holography”

Abstract

After an extended introduction on hydrodynamics, which will include its recently uncovered connection with many-body chaos, I will discuss the concept of generalised global symmetries and their applications. From the point of view of effective field theory, I will first present a recent, comprehensive reformulation of magnetohydrodynamics, which is a theory of low-energy excitations in plasmas. I will then discuss our construction of holographic duals to theories with generalised global symmetries. Of particular focus will be a five-dimensional bulk theory with a dynamical two-form gauge field, which is dual to a field theory in which magnetohydrodynamics captures the dynamics of its infra-red limit. In the final part of this talk, I argue that generalised global symmetries are a powerful tool for constructing theories with dynamical defects even in the absence of known microscopic origins of such symmetries. As an example, I will use the theory of viscoelastic states and formulate it both in effective field theory and holography.

Thursday, February 22, 2018

10:30 a.m.

MacLaurin Building

Room D010