



# PHYSICS AND ASTRONOMY SEMINAR

## Dr. Hansjoerg Zeller

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### “Transport Properties of Anisotropic Holographic Superfluids”

#### Abstract

We study transport phenomena in p-wave superfluids in the context of gauge/gravity duality. Due to this system, the tensorial structure of the transport coefficients is non-trivial in contrast to the isotropic case. In particular, there is an additional shear mode which leads to a non-universal value of the shear viscosity even in an Einstein gravity setup. In this talk, we present a study of the helicity two, helicity one and helicity zero fluctuation modes. In addition to the non-universal shear viscosity, we also discuss the thermoelectric effect, i.e. the mixing of electric and heat current in the directions transverse and parallel to the condensate. Moreover, we show a transport coefficient associated to the first normal stress difference which is not present in the isotropic case. Finally, we present additional effects due to the anisotropy, e.g. the flexoelectric effect and the piezoelectric effect.

Thursday, February 21, 2013

2:00 p.m.

Clearihue Building

Room A207