

# Seminar

Dr. Magnus Engenhorst

U Bonn

## Bridgeland stability and BPS states (Short Lecture Course)

September 15 - 19, 2014

at 14:00 h

ESI, Boltzmann Lecture Hall

**Abstract:** Stability conditions play a prominent role in algebraic geometry and string theory. The initial motivation comes from Michael Douglas's work on D-branes. Bridgeland stability has now a lot of applications, e.g. in birational geometry or Teichmüller theory. In this short course we see how one is naturally lead from the study of BPS states in supersymmetric field theories to stability conditions on certain (triangulated) categories associated with quivers with potential. We introduce the theory of (Bridgeland) stability conditions on triangulated categories and develop tools like tilting theory and t-structures. Further we discuss the relationship to Donaldson-Thomas invariants and (the categorification of) cluster algebras.

This short course is aimed at advanced master students, PhD students and Postdocs in mathematics and physics.

Nils Carqueville

July 4, 2014