

**DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE  
UNIVERSITY OF SOUTHERN DENMARK, ODENSE**

# **Mathematics Seminar**

**Evgenios Kakariadis  
Newcastle University**

**Friday 21 February, 13:15-14:15  
DIAS Seminar Room**

## **Entropy and phase transitions for KMS-states of Pimsner-type algebras**

### **Abstract**

There is a well-developed theory of Kubo-Martin-Schwinger states (or equilibrium states) for  $C^*$ -algebras, motivated by Gibbs states in finite dimensions. They have attracted the interest of the community as they provide an invariant for classification up to equivariant isomorphisms of  $C^*$ -algebras. There has been a growing study of their parametrization in particular for  $C^*$ -algebras coming from Hilbert modules, which are generalizations of the Toeplitz and Cuntz algebras. In this talk I will give an overview about the theory of KMS states in this setting and present how the notion of entropy allows to identify phase transitions of the dynamics. We will discuss how these ideas apply to Nica-Pimsner algebras and (higher-rank) graph  $C^*$ -algebras.