Probabilistic Operator Algebra Seminar

Organizer: Dan-Virgil Voiculescu

February 13 **Kristin Courtney**, University of Southern Denmark Odense

Title: *Nuclear C^*-algebras and generalized inductive limits*

Inductive limits are a central construction in operator algebras because they allow one to construct complicated objects with tractable properties using well-understood building blocks, such as finite-dimensional C^*-algebras. In the classical setting, the only C^*-algebras that arise as inductive limits of finite-dimensional C^*-algebras are the AF-algebras. In order to realize a broader class of nuclear C^*-algebras as inductive limits of finite-dimensional C^*-algebras, Blackadar and Kirchberg introduced a more generalized notion of inductive systems of C^*-algebras. In their 1997 article, they showed that a separable C^*-algebra is nuclear and quasidiagonal if and only if it is a generalized inductive limit of finite-dimensional C^*-algebras (called an NF algebra). By introducing more flexibility into their systems and limits, one can achieve a similar characterization for all separable nuclear C^*-algebras. In this talk, I will discuss their generalized inductive systems and the recently introduced C^*-encoding and CPC*-systems. The structure encoded by these systems is quite natural, and these systems directly correspond to completely positive approximations of nuclear C^*-algebras. This is based on joint work with Wilhelm Winter.