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.