Finite Dimensional Approximation and Basic Group C*-algebras

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We give an introduction to finite dimensional approximation properties for C*-algebras, like nuclearity, exactness and operator approximation property. Also the approximation properties for discrete groups will be discussed. We explain how the approximation properties of discrete groups are related to finite dimensional approximation properties of their group C*-algebras.

In particular, we cover the following:

- Definition and some permanence properties of nuclearity, exactness, completely bounded approximation property (CBAP) and strong operator approximation properties (OPA) for C*-algebras.

- Reduced and full group C*-algebras.

- Amenability, exactness, weak amenability, and Approximation property (AP) for discrete groups.

- Finite dimensional approximation properties of reduced group C*-algebras.