

*The Mini-Course on  
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## **Approximation Properties for Groups and Operator Algebras**

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We discuss the notions of amenability, amenability at infinity, exactness, property (T) and Haagerup property for (discrete) groups. We also introduce approximation properties of  $C^*$ -algebras, such as nuclearity, exactness, and the Haagerup approximation property. We relate the two sets of notions through group  $C^*$ -algebras.

## **References**

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3. E. Kirchberg and S. Wassermann: Exact groups and continuous bundles of  $C^*$ -algebras, *Math. Ann.* 315 (1999), 169-203.
4. Pierre-Alain Cherix, Michael Cowling, Paul Jolissaint, Pierre Julg, Alain Valette, *Groups with the Haagerup Property: Gromov's a-T-menability*, *Progress in Mathematics*, Volume 197, Springer Science & Business Media, 2001.
5. Nathaniel P. Brown and Narutaka Ozawa,  *$C^*$ -algebras and Finite-Dimensional Approximations*, *Graduate Studies in Mathematics*, vol. 88, American mathematical Society, 2008.