

Wentang Kuo

Title: Representation Theory of compact groups

Objective: This is a first course in representation theory aimed at graduate and advanced undergraduate students. It only requires basic knowledge on linear algebra and groups theory. One of the main themes will be how representation theory and Lie groups provide examples of interesting phenomena in algebras, geometry, and topology.

We plan to cover the following topics, as many as time allows.

representations of finite groups, Lie algebras, the Peter-Weyl theorem, maximal tori, root systems, the classification of compact Lie groups, the Weyl character formula.