

# Connected Lie groups and their covering groups: representations and $C^*$ -algebras

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## Abstract

Unitary representations of a linear reductive group are well established, while the representations of its covering group (usually nonlinear) do not have a systematic description. Observing that the unitary dual of a locally compact group can be identified with the spectrum of the  $C^*$ -algebra of the group, we investigate relations between the  $C^*$ -algebras and K-theory of a connected Lie group  $G$  and its covering group. The representation of the covering group can be covered by representations of  $G$  and those of the fundamental group of  $G$ , and are encoded in the construction of a continuous field of  $C^*$ -algebras. This is joint work with Kuok Fai Chao.