

# **An Introduction to Loop Groups**

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## **Abstract**

A Lie group is a group that is also a smooth manifold. Lie groups are the natural concept for the mathematical description of symmetry in natural world. An important class is the semisimple groups. This talk will begin with examples, classifications of semisimple groups and their algebraic counterparts semisimple Lie algebras. Then we will focus on the loop groups, which is an infinite dimensional generalization of semisimple groups.

**Prerequisite:** manifolds theory, group theory