Lie groups and Lie algebras

New paper, 2nd semester 2007

Symmetries and invariants play a fundamental role in mathematics. Especially important are symmetries that depend continuously on various parameters. These form Lie groups. Closely related are structures called Lie algebras. Historically these structures have played an absolutely pivotal role in many areas which range from the theory of differential equations and their solutions, to differential geometry and to the classification of elementary particles. Lie algebras also provide a very powerful apparatus for solution various algebraic problems. For example, the Restricted Burnside problem for groups was solved after being reformulated in terms of Lie algebras.

Strongly recommended for students advancing in pure mathematics and theoretical physics.

Prerequisite: Maths 320 and 332