



SC

MATH2401 Groupes de Lie

[22.5h+7.5h exercises] 2.5 credits

This course is taught in the 2nd semester

Teacher(s): Luc Haine
Language: french
Level: 2nd cycle course

Aims

This course proposes an introduction to the theory of Lie groups, from the point of view of differential geometry. It is a natural continuation of the course MATH 2480, where the basic tools have been elaborated.

Main themes

A Lie group is a differential variety with a group structure compatible with the differential structure. The group structure induces an additional structure on the tangent space to the unit, called a Lie algebra. The course will study the fundamental concepts of the theory of Lie groups and Lie algebras. It also introduces to the basic notions of representation theory. It leads to the study of the Kostant-Kirillov co-adjoint orbits. These co-adjoint orbits offer an important class of symplectic varieties, that have applications in numerous problems coming from mechanics and mathematical physics.

Other credits in programs

MAP23	Troisième année du programme conduisant au grade d'ingénieur civil en mathématiques appliquées	(2.5 credits)
MATH21/G	Première licence en sciences mathématiques (Général)	(3 credits)
MATH22/E	Deuxième licence en sciences mathématiques (Economie mathématique)	(2.5 credits)
MATH22/G	Deuxième licence en sciences mathématiques	(3 credits)
MATH22/S	Deuxième licence en sciences mathématiques (Statistique)	(2.5 credits)