Introduction to Lie groups, Lie algebras and their representations
MATH M0012J

Exam study guide

The exam will cover the following material from the lecture notes:

- Marix Lie groups (Chapter 1),

- Lie algebras of Lie groups (Chapter 2),

- The groups $SU(2)$ and SO(3) (Sections 4.1–4.9),

- Invariant measure (Sections 5.1-5.7),

- General theory of representations of Lie groups and Lie algebras (Sections 6.1, 6.2, 6.5, 7.1),

- Representations of $\mathfrak{su}(2)$ (Chapter 8),

- Compact simple Lie groups and Cartan subalgebras (Chapter 9),

- Introduction to structure theory — roots and weights (Section 10.1, 10.2).