LIE GROUPS AND LIE ALGEBRAS, MATH 229A

RAPHAËL ROUQUIER

Spring 2023

MWF 11-11:50am, MS 5137

This course will give an introduction to the classical theory of Lie groups and Lie algebras.

Topics to be discussed:

- Topological groups
- Lie groups
- Lie algebras (nilpotent, solvable, semi-simple), enveloping algebras
- Correspondence between Lie groups and Lie algebras

References

D.Huybrechts, "Complex Geometry", Springer Verlag, 2005.

J.Faraut, "Analysis on Lie Groups. An introduction", Cambridge University Press, 2008

J.-P.Serre, "Lie algebras and Lie groups", Lecture Notes in Mathematics 1500, Springer Verlag, 1992

V.S.Varadarajan, "Lie Groups, Lie Algebras and their Representations", Springer 1984

Office hours WF 10am-10:50am or by appointment.

Grading

The course assessment will be based on the write-up of an assigned project. The write-ups (up to 10 pages) will be due June 7.

A list of possible projects will be provided on Wednesday April 26 and a preferred choice, as well as a second and third choice, will need to be sent to me by email by Friday April 28. You may also suggest your own topic, which I will need to approve.

An abstract of what you plan to do for your write-up will be due on Friday May 12.