

MATHEMATICAL TOOLS

[David Brizuela and Iñaki Garay]

Differential geometry. Differential manifolds. Curves, tangent vectors and tangent space. Tensor algebra. Tensor calculus: covariant derivative, Lie derivative, geodesics.

Lie groups. Introduction to group theory. 2.2. Lie groups. Lie algebras. Lie group representations.

Functional analysis Introduction: normed linear spaces, Banach and Hilbert spaces. Distributions and Fourier transform. Operators and spectral theory.