ICTP DIPLOMA PROGRAMME IN HIGH ENERGY PHYSICS 2012-13

SYLLABUS

Lie Groups & Lie Algebras - {20 Lectures = 30 hours} G. Bonelli

1. Introduction
2. Quantum mechanics and rotation invariance
4. More about representations
5. Ladder operators
6. The group SU (2)
7. Spin and angular distributions
8. Isospin
9. The Hydrogen Atom
10. The group SU(3)
11. Representations of SU(N); Young tableaus
12. Beyond these notes

Appendix A. Summary of the properties of matrices Appendix

B. Differentiation of matrices Appendix
C. Functins of matrices Appendix
D. The Campbell-Baker-Hausdorff formula Appendix
E. Complex inner product, unitary and hermitian matrice