Constrained Hamiltonian Systems

DARIO FRANCIA

Scuola Normale Superiore - A.Y. 2013-2014
dario.francia@sns.it

The aim of the course is to provide the essential elements for the analysis of constrained Lagrangian and Hamiltonian systems with finite and infinite number of degrees of freedom, and to introduce the basic tools for the quantization of theories with constraints.

Number of hours: 25
Exam: problems and discussion.

References:

Covered topics:

☐ Classical Lagrangian analysis

☐ Classical Hamiltonian analysis

**Fermions**


**Quantization of constrained systems**

**Dirac quantization:** Prototype second-class and first-class systems. Reduced phase-space quantization. The Maskawa-Nakajima theorem. Operator quantization of systems with second-class constraints. Operator quantization of systems with first-class constraints. Non-degenerate Fermionic systems and negative-norm states.