

Integrability and path integral quantization of constrained systems

September 14, 2007

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Abstract

Constrained systems are investigated using the Hamilton-Jacobi method. The equations of motions and the action function are obtained as total differential equations in many variables. The integrability conditions on these equations are considered by treating the system as Multi-Hamiltonian system. The path integral is obtained as an integration over the canonical variables without any need to fix any gauge or to enlarge the initial phase space. Examples are studied.

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