



QUANTIZED VERSION OF THE THEORY OF AFFINE BODY*

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Abstract. In the previous lecture we have introduce and discussed the concept of affinely-rigid, i.e., homogeneously deformable body. Some symmetry problems and possible applications were discussed. We referred also to our motivation by Euler ideas. Below we describe the general principles of the quantization of this theory in the Schrödinger language. The special stress is laid on highly-symmetric, in particular affinely-invariant, models and the Peter-Weyl analysis of wave functions.

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1. Introduction

Let us consider quantum-mechanical system in configuration space Q – the n -dimensional differential manifold. In Schrödinger theory pure states are described by complex scalar densities Ψ of weight $1/2$ [13]. The scalar product is given by

$$(\Psi, \Phi) = \int \bar{\Psi} \Phi = \int \bar{\Psi}(q) \Phi(q) dq^1 \dots dq^n.$$

Usually Q is a Riemannian or pseudo-Riemannian space (Q, Γ) . Classical kinetic energy is then given by

$$T = \frac{1}{2} \Gamma_{\mu\nu} \frac{dq^\mu}{dt} \frac{dq^\nu}{dt}.$$

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