"Experiments with polarized particle"

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Time and Date：15:00 - 17:00, Wed July 17th 2019

Venue： Room 745, Science Complex B (H-03)

Abstract:

Reactions with particles having spin provide opportunity to perform numerous experiments, the aim of which is to determine the details of the transition amplitude. The density operator provides description of the quantum mechanical state of a system of particles with spin s. For spin s=1/2 and s=1 the general form of the density matrix will be given in terms of a kartesian polarisation vector (s=1/2), and a kartesian polarisation vector and tensor (s=1). That description of the density operator will be generalized to any spin s by introducing the spherical tensors. Starting from the polariation state of the incoming beam and target, the density operator, which describes the polarization state of particles in the outgoing state of the reaction will be calculated and its relation to the cross section explained. Depending on the polarization of the particles in the incoming and/or in the outgoing state, possible types of experiments will classified. Observables which can be mea!
 sured in such experiments will be defined and their relation to the transition amplitude presented.

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