

RCNP SEMINAR

Speaker	Prof. Yoshikazu Fujiwara (Kyoto University)
Title	Quark-model baryon-baryon interaction and its application to few-body systems
Time&Date	16:00-, April 30(Fri), 2010
Place	Lecture room, 4th floor , RCNP, Osaka University

Abstract

The QCD-inspired spin-flavor SU_6 quark model (QM) for the baryon-baryon interaction, developed by the Kyoto-Niigata group, is a unified model describing interactions between full octet-baryons. It is given by the Born kernel formulated in the resonating-group method (RGM) for interacting three-quark clusters. We can therefore use this interaction for various types of G -matrix and Faddeev calculations including the hyperons Σ , Λ , and Ξ .

In this talk, I would first introduce the characteristic features of NN , YN , and YY interactions, predicted by the quark-model baryon-baryon interaction. These are intimately related to the recent progress of the hypernuclear physics; e.g., the small spin-spin term of the ΣN interaction, the extremely small one-body Σ self force of the Λ hyperon, the repulsive Σ single-particle potentials, and the weak $\Lambda\Lambda$ interaction found in the Nagara event. The characters of the ΞN interaction and the depth of the Ξ single-particle potential are attracting much attention of many people, since the strangeness experiments at J-PARC have just begun.

In the latter half of my talk, I will talk about our recent applications of the quark-model NN interaction to the neutron-deuteron scattering, including the breakup processes.