

Nijmegen Baryon-baryon Interactions, S=-1,-2 systems

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We report on recent developments and results of the extended-soft-core (ESC) interactions. In a unified manner the ESC-model, describes nucleon-nucleon (NN), hyperon-nucleon (YN), and hyperon-hyperon (YY), using (broken) $SU_F(3)$ -symmetry. In the ESC approach to baryon-baryon (BB) the dynamics is derived from (i) one-boson-exchanges (OBE), (ii) two-meson-exchanges (TME), and (iii) meson-pair-exchanges (MPE). Special features are the inclusion of the axial-vector meson potentials, and a zero in the scalar-meson form-factors. With these ingredients a rather flexible dynamical framework is constructed. Surprisingly, it appeared feasible to keep the parameters of the model rather close to the predictions of the 3P_0 quark-pair-creation model (QPC). This is the case for the meson-baryon coupling constants and the $F/(F+D)$ -ratio's as well. As is by now rather well known, in this model broken $SU(3)$ -symmetry is very succesful in giving a basis for a rather accurate description of the rich NN-data, the YN-data, while also having a $\Lambda\Lambda$ -interaction that accomodates nicely the Nagara-event. Here, we report on a recently obtained version, called ESC07. For the S=-1 systems we discuss e.g. the spin-orbit results. Namely, it appears that the pair-interactions play a special role in order to give a rather small spin-orbit interaction for ΛN , as required by experiments. In particularly we want to show and discuss the predictions for the S=-2 systems in detail.