A meson-exchange model for the YN interaction

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We present a new model for the hyperon-nucleon (ΛN, ΣN) interaction, derived within the meson-exchange framework. The model incorporates the standard one-boson exchange contributions of the lowest pseudoscalar and vector meson multiplets with coupling constants fixed by SU(6) symmetry relations. In addition - as the main new feature of the model - the exchange of two correlated pions or kaons [1], both in the scalar-isoscalar and the vector-isovector channels, are included. In the scalar channel those contributions provide the main part of the intermediate-range interaction between two baryons, thereby eliminating the need for the fictitious sigma meson, which has been an unavoidable element of effective one-boson-exchange descriptions.
The model provides a good overall description of the available YN data. As an example we show in Fig. 1 predictions for the integrated cross sections for the reactions $\Sigma^- p \to \Lambda n$ and $\Sigma^+ p$. Further results will be presented and discussed at the Workshop.

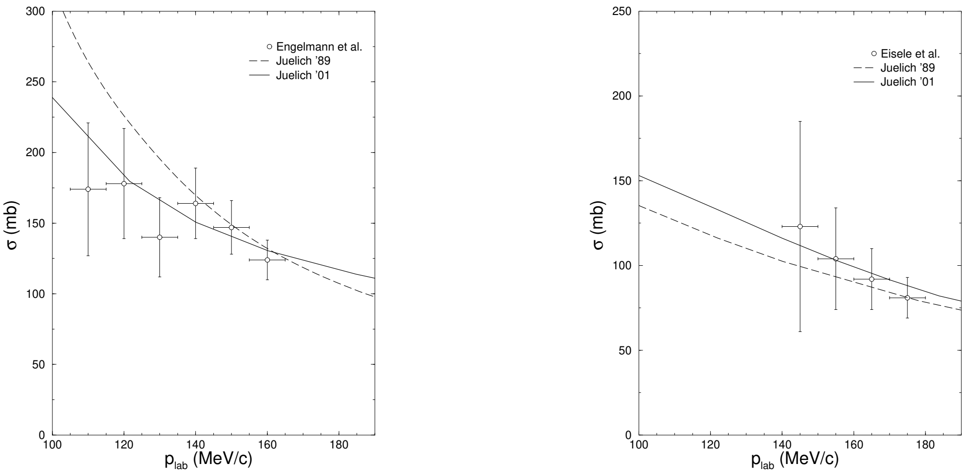

Fig. 1: Integrated cross sections for the reactions $\Sigma^- p \to \Lambda n$ and $\Sigma^+ p$. The solid lines are the result of our new YN interaction. The dashed curves show the predictions of the model A of Ref. [2].

References

1. A.Reuber *et al.*, Nucl. Phys. **A608**, 243 (1996).
2. B.Holzenkamp *et al.*, Nucl. Phys. **A500**, 485 (1989).