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Study of $\Sigma^*-\Delta$ Interactions

DAI Lian-rong¹, BAI Li-hui¹, ZHANG He^{1、#},

LIU Jia¹, FU Yao^{1、2}, TONG De-xin^{1、3}

(1 Department of Physics, Liaoning Normal University, Dalian 116029, Liaoning, China;

2 School of Police Dog Technique, Public Security Ministry of China, Shenyang 110034, China;

3 Department of Police Technology, Liaoning Police Academy, Dalian 116036, Liaoning, China)

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摘要

We study the $\Sigma^*-\Delta$ interaction in the chiral SU(3) quark model and in the extended chiral SU(3) quark model. In these two models, the short range interaction mechanism are totally different, one is from the one gluon exchange and another is from the vector meson exchange. The possible reasons of forming strangeness -1 bound states are given. Comparisons between the cases with and without quark exchange effect are made. The results show the quark exchange effect does give attractions to $(\Sigma^*\Delta)_{ST=0}$ and $(\Sigma^*\Delta)_{ST=3}$ systems, which means the special symmetry is important. Also, we make some analysis on chiral field effect, our results show that the σ exchange dominantly provides the attractive interaction for these two states.

关键词 [dibaryon](#) [symmetry](#) [chiral field](#)

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通讯作者:

Zhang He zhanghe325@yahoo.com.cn

作者个人主页: DAI Lian-rong¹; BAI Li-hui¹; ZHANG He^{1、#};

LIU Jia¹; FU Yao^{1、2}; TONG De-xin^{1、3}

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