

Proceedings of the 3rd China-Japan-Korea Hardron and Nuclear Physics 2008 Symposium

In flight (K-, N) Reactions for Study of Kaon nucleus Interaction

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收稿日期 修回日期 网络版发布日期 接受日期

摘要 We would like to emphasize that the in flight (K-, N) reactions are particularly useful for the study of the K nucleus interaction. Since the reaction mechanism is well known, there is little ambiguity to derive the K nucleus interaction from the measured missing mass spectra. Here we discuss the missing mass spectra of the (K-, N) reactions on the ^{12}C and ^{16}O targets. The spectra show an appreciable amount of strength below the K nucleus threshold which indicates that the K nuclear potential is strongly attractive. Comparison of the missing mass spectra with theoretical calculations leads to a potential depth of around -190 MeV for the $^{12}\text{C}(\text{K}^-, \text{n})$ reaction. A less deep potential of around -160 MeV reproduces well that of the $^{12}\text{C}(\text{K}^-, \text{p})$ reaction. The difference can be due to isospin dependence of the interaction. Our data show that the K nucleus potential is very deep to realize kaon condensation in the core of neutron stars.

关键词 [neutron star](#) [kaon condensation](#) [kaon nucleus interaction](#)

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