

Reference

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2 - 6 Search for Three Mesons Hidden Charm Bound State $K_{c\bar{c}}(4180)$ *

Shen Qinghua^{1,2} and Wei Xiang^{1,2}

⁽¹⁾Institute of Modern Physics, Chinese Academy of Sciences, Lanzhou 730000, China;

⁽²⁾School of Nuclear Sciences and Technology, University of Chinese Academy of Sciences, Beijing 101408, China)

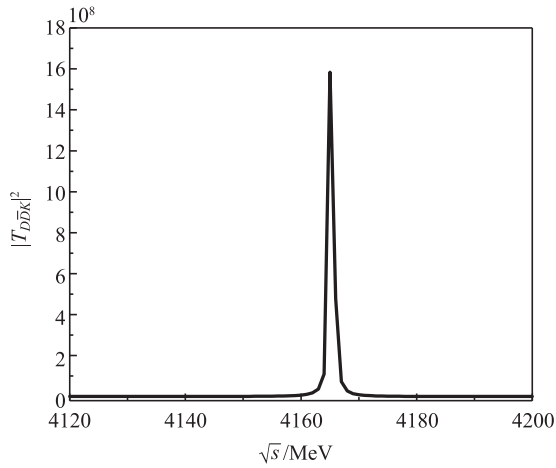


Fig. 1 Modulus squared of the total scattering amplitude of $D\bar{D}K$ three-body system in isospin $I = \frac{1}{2}$.

An important and fundamental issue about hadronic physics is their structure and nature. More and more exotic states have been observed by experiments since $X(3872)$ was found. Various new models about hadronic structure were proposed in theoretical side, such as tetraquark state, pentaquark state, glueball, hybrid state and molecular state. In particular, three mesons molecular also have attracted much interest.

Recently, three-meson $D\bar{D}K$ bound state $K_{c\bar{c}}(4180)$ is predicted by solving the Schrödinger equation with Gaussian Expansion Method^[1]. We checked this result with a different method, Fixed-center approximation to Faddeev equations. The result is shown in Fig. 1, in which we viewed cluster $D\bar{D}$ as molecular $X(3720)$ and scattered K meson on D (or \bar{D}) in cluster^[2]. Afterwards, its production in $e^+e^- \rightarrow c\bar{c}$ also was discussed^[3]. We look forward to its observation by experiments in the future.

References

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