

A study of charmed baryon production from chiral effective Lagrangian with heavy-quark symmetry and large- N_c constraints

Tuesday, 22 May 2018 11:45 (15 minutes)

In this work, we will calculate the cross-section of charmed baryon production near threshold from $p\bar{p}$ annihilation processes. We employ 3-point vertices chiral effective Lagrangian of D-mesons, charmed and light baryons based on $SU(2)$ flavor symmetry, there are 15 terms in total. By using heavy-quark symmetry (HQS) and large- N_c operator analysis, one can reduce the number of low energy constants (LECs) down to 5. The reactions, $p\bar{p} \rightarrow \Lambda_c \bar{\Lambda}_c$, $\Sigma_c \bar{\Sigma}_c$ and $\Sigma_c^* \bar{\Sigma}_c^*$, are investigated by using our chiral effective Lagrangian with HQS and large- N_c constraints. Results from our work will be used to compare with several models in literatures. In addition, we hope that our results might be useful for planning the measurements of the relevant processes from the \bar{P} ANDA facilities in the forthcoming future.

Primary author: Mr SANGKHAKRIT, Thanat (Suranaree University of Technology)

Co-authors: Mr SUYUPORN, Thananuwat (Suranaree University of Technology); Dr SAMART, Daris (Department of Applied Physics, Rajamangala University of Technology Isan); Dr SUPANAM, Nopmanee (Department of Physics, Srinakharinwirot University); Prof. YAN, Yupeng (School of Physics, Institute of Science, Suranaree University of Technology)

Presenter: Mr SANGKHAKRIT, Thanat (Suranaree University of Technology)

Session Classification: A12: High Energy Physics

Track Classification: High Energy and Particle Physics