

Study on the transverse polarization of Λ and $\bar{\Lambda}$ in e^+e^- annihilation at Belle

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Spontaneous hyperon polarization has been a long standing issue for about 40 years. The so called polarizing Fragmentation Function (FF), $D_{1T}^\perp(z, p_\perp^2)$, describes the production of a transversely polarized hadron from an unpolarized quark, where z denotes the fractional energy of the hadron and p_\perp the transverse momentum with respect to the fragmenting quark. The polarizing FF can be determined by measurement of the transverse polarization of hyperons. Because of the chiral-even nature, the polarizing FF sign is possible to be unambiguously measured. It provides a unique opportunity to test the universality of the FFs. The large e^+e^- annihilation data sample collected by the Belle experiment at the KEKB storage ring allows a precision study of the production of transversely polarized hyperons and check our current understanding of the associated QCD dynamics. The status of the analysis on the transverse polarization of $\Lambda(\bar{\Lambda})$ in the inclusive production in e^+e^- annihilation at Belle will be presented for both cases of with and without a light hadron to tag the flavor of the quark fragmenting to the $\Lambda(\bar{\Lambda})$.

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