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Observation of Transverse Lambda Polarization in e^+e^- Annihilation at Belle

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Measurements of the transverse polarization of lambda hyperons with respect to their production plane are sensitive to the polarizing fragmentation function $D_{1T}^{\Lambda/q}$. This fragmentation function might be part of the explanation of the significant transverse polarization of Lambda in p+p scattering. It can also be seen as the hadronization analogue to the Sivers function, since it describes the transverse momentum dependent transverse polarization of the hyperon. As a chiral-even, naive time-reversal-odd function it also allows to test universality, in particular the sign, of these functions between different processes.

We present the first observation of the transverse polarization of Lambda hyperons in e^+e^- annihilation at or near $\sqrt{s} = 10.58$ GeV using a dataset of about 800fb^{-1} integrated luminosity collected by the Belle detector.

Primary author: VOSSEN, Anselm

Presenter: VOSSEN, Anselm

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