

Measurement of Beam Polarization at an e^+e^- B -Factory with New Tau Polarimetry Technique

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Belle II is considering upgrading SuperKEKB with a polarized electron beam. The introduction of beam polarization to the experiment would significantly expand the physics program of Belle II in the electroweak, dark , and lepton flavor universality sectors. For all of these future measurements a robust method of determining the average beam polarization is required to maximize the level of precision. The BABAR experiment has developed a new beam polarimetry technique, Tau Polarimetry, capable of measuring the average beam polarization to better than half a percent. Tau Polarimetry strongly motivates the addition of beam polarization to SuperKEKB and could also be used at future e^+e^- colliders such as the ILC.

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