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Single Spin Asymmetry with a Transversely Polarized Hydrogen Target at HERMES TOSHI-AKI SHIBATA, Tokyo Institute of Technology, HERMES COLLABORATION — Single spin asymmetry in meson productions with a transversely polarized hydrogen target was measured by HERMES experiment at DESY-HERA. Deep inelastic scattering of the 27.6 GeV positron off an internal hydrogen gas target was used. In addition to the scattered positron, produced hardons were detected. Pions, kaons and protons were identified with Ring Imaging Cherenkov Couonter(RICH). Azimuthal angle dependence of produced mesons was analysed in terms of Collins effect and Sivers effect. The separation of these effects became possible for the first time because of semi-inclusive measurement. Collins effect provides an access to a new, so far unmeasured structure function from which one can extract the transversity quark distribution. Sivers effect might have a link to the orbital motion of quark. The orbital angular momentum of quarks in the proton could contribute to the proton spin. In view of 'nucleon spin problem' started by EMC, the orbital angular momentum of quarks is an important subject to be studied.

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