Plenary
Structure of the Nucleon and Nuclei Studied by HERMES

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The spin structure of the nucleon remains a challenging problem in the development of a model of hadronic structure based on quarks and gluons. Increasing selective probes of partonic processes are requisite to further progress. The HERMES experiment emphasizes semi-inclusive deep inelastic scattering(DIS) as a means of selectively probing the flavor structure of the nucleon as well as accessing specific reactions of particular predictive power. Identification of $\pi's$, $K's$, and $p's$ is accomplished by means of a novel dual-radiator ring-imaging Cerenkov counter. Data have been accumulated for semi-inclusive pion, kaon, and proton double-spin asymmmetries, as well as for high-p_T hadron pairs, and single-spin azimuthal asymmetries for pion electro- production and deep virtual Compton scattering. These results provide information on the flavor decomposition of the polarized quark distributions in the nucleon, including the polarization of the strange sea, and a first glimpse of the gluon polarization, while the observation of the azimuthal asymmetries show promise for probing the tensor spin of the nucleon and isolating the total angular momentum carried by the quarks. The program of polarization physics is supplemented by an extensive program of unpolarized measurements. Measurements of hadron multiplicities in DIS have been made for targets of deuterium, N_2, and ^{84}Kr. For the first time, the multiplicity ratios of $\pi's$, $K's$, and $p's$ for nuclear targets relative to the deuteron, i.e. the "attentuation ratios", have been derived as a function of both virtual photon energy and fractional hadron energy. The kinematic dependences of the multiplicity ratios provide rigorous tests of available models of hadron propagation and hadronization.