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Constraining nucleon strangeness[1] TIMOTHY HOBBS, University of Washington, MARY ALBERG, University of Washington; Seattle University, GERALD MILLER, University of Washington — Determining the nonperturbative $s\bar{s}$ content of the nucleon has attracted considerable interest and been the subject of numerous experimental searches. These measurements used a variety of reactions and place important limits on the vector form factors observed in parity-violating (PV) elastic scattering and the parton distributions determined by deep inelastic scattering (DIS). In spite of this progress, attempts to relate information obtained from elastic and DIS experiments have been sparse. To ameliorate this situation, we develop an interpolating model using light-front wave functions capable of computing both DIS and elastic observables. This framework is used to show that existing knowledge of DIS places significant restrictions on our wave functions. The result is that the predicted effects of nucleon strangeness on elastic observables are much smaller than those tolerated by direct fits to PV elastic scattering data alone. Using our model, we find $-0.024 \leq \mu_s \leq 0.035$, and $-0.137 \leq \rho_s^D \leq 0.081$ for the strange contributions to the nucleon magnetic moment and charge radius. The model we develop also independently predicts the nucleon's strange spin content and scalar density, and for these we find agreement with previous determinations.

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Timothy Hobbs
University of Washington

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