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The strange electromagnetic form factors of the nucleon at low Q^2

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The strange electric and magnetic form factors of the nucleon, G_E^s and G_M^s, give the contributions of strange quarks to the charge and magnetization distributions of the nucleon, which solely arise from the sea of $s\bar{s}$. G_E^s and G_M^s can be determined by combining the well-known electromagnetic form factors of the proton and the neutron, $G_{E,M}^{\gamma,p}$ and $G_{E,M}^{\gamma,n}$, with the neutral weak form factors of the proton, $G_{E,M}^{Z,p}$, which can be measured via parity-violating (PV) elastic electron scattering. In the past 10 years, a series of definitive PV electron scattering experiments along with several theoretical studies now provide a basis for extracting precision information on these strange quark contributions. In this talk, I will briefly review the experimental technique, and give a summary of the PV elastic electron scattering measurements (at low momentum transfer in particular). A global analysis to extract G_E^s and G_M^s from the data and the physics implications to the "strange sea" will then be presented.