Motivation for studying G_A^s

One nucleon matrix element of axial quark current:

$$\langle p,s|\bar{q}\gamma^\alpha\gamma^5 q|p,s\rangle = 2m_N s^\alpha g_A^q$$

constants g_A^u, g_A^d, g_A^s determined from:

- QCD sum rule (polarized structure function)

$$\Gamma_1^p = \int_0^1 dx g_1^p(x) = \frac{1}{2}\left(\frac{4}{9}\Delta u + \frac{1}{9}\Delta d + \frac{1}{9}\Delta s\right)$$

- relation $g_A = g_A^u - g_A^d$
  with $g_A = 1.2573 \pm 0.0028$ from neutron decay

- relation $3F - D = g_A^u + g_A^d - 2g_A^s$
  F, D from semileptonic decay of hyperons.

Determination of various g_A^q subject to several assumptions (small x extrapolation, QCD corrections, SU(3) invariance, etc.)