

# The final HERMES data on $g_1^p$ and $g_1^n$

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Precise measurements of the spin structure functions  $g_1^p(x, Q^2)$  and  $g_1^n(x, Q^2)$  are presented over the kinematic range  $0.0041 \leq x \leq 0.9$  and  $0.18 \text{ GeV}^2 \leq Q^2 \leq 20 \text{ GeV}^2$ . The data were collected at the HERMES experiment at DESY, in deep-inelastic scattering of 27.6 GeV longitudinally polarized positrons off longitudinally polarized hydrogen and deuterium gas targets internal to the HERA storage ring.

The results base on a refined analysis and are corrected for radiative and detector smearing effects using an unfolding algorithm that accounts for the kinematic migration of events.

The presently most precise determination of the neutron spin structure function  $g_1^n$  is obtained by combining the HERMES deuteron and proton data.

Integrals of  $g_1^p$ ,  $g_1^d$  and  $g_1^n$  are calculated over the measured  $x$  range, at  $Q^2=5 \text{ GeV}^2$ . Neglecting any possible contribution to the  $g_1^d$  integral from the region  $x \leq 0.021$ , a value of  $0.330 \pm 0.011$  (theo.)  $\pm 0.025$  (exp.)  $\pm 0.028$  (evol.) is obtained for the flavor-singlet  $a_0$  in a leading twist NNLO analysis

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