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Proton spin in leading order of the covariant approach

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In the framework of the covariant quark-parton model we study the relativistic interplay between the quark spins and orbital angular momenta, which collectively contribute to the proton spin. The spin structure functions g1 and g2, corresponding to the many-quark state J =1/2 are shown to satisfy constraints and relations, which fit well the available experimental data including the data on proton spin content ΔΣ ⊠ 1=3. The suggested Lorentz-invariant three-dimensional
approach for calculation of the structure functions is compared with the approach based on the conventional collinear parton model. For details see Phys.Rev. D89, 014012 (2014).

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