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On the generalized parton distributions (GPDs) of spin-3/2 systems

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We give a decomposition of the vector current matrix element, and present our analysis and study for the generalized parton distribution functions (GPDs) of spin-3/2 systems [1]. Sum rules of those GPDs and the structure functions of the systems are discussed. As a typical example, we numerically calculate the electromagnetic and gravitational form factors of the spin-3/2 baryons (like Δ , Ω or other decuplet baryons) by employing a quark-diquark approach [2-4]. Lattice calculation results are considered in order to constrain our model parameters. Our calculation gives a reasonable description for the electromagnetic and mechanical properties of those spin-3/2 particles. In addition, the transversity of GPDs are also discussed [5].

References

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