Contribution ID : **1**   Type : **Poster**

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

Tuesday, 22 October 2024 17:05 (115)

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

[1] Dongyan Fu, Baodong Sun, and Yubing Dong, Phys. Rev. D106 (2022), 116012; arXiv: 2209.12161.

[2] Dongyan Fu, Baodong Sun, and Yubing Dong, Phys. Rev. D105 (2022), 096002; arXiv: 2201.08059.

[3] Dongyan Fu, Baodong Sun, and Yubing Dong, Phys. Rev. D107 (2023), 116021; arXiv: 2305.02680.

[4] Dongyan Fu, Jiaqin Wang, and Yubing Dong, Eur. Phys. J. C 84 (2024), 79; arXiv: 2306.04869.

[5] Dongyan Fu, Yubing Dong, and S. Kumano, Phys. Rev. D109 (2024), 096006; arXiv: 2402.11561 .

Primary author(s) : Dr. FU, Dongyan (Institute of High Energy Physics); Ms. WANG, Jiaqi (Institute of High Energy Physics, The Chinese Academy of Sciences); Prof. DONG, Yubing (Institute of High Energy Physics, The Chinese Academy of Sciences)

Presenter(s) : Prof. DONG, Yubing (Institute of High Energy Physics, The Chinese Academy of Sciences)

Session Classification : Poster session

Track Classification : High energy physics: experiment