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Investigating representations of high-spin hadron wave function in the Regge framework BYUNG GEEL YU, KOOK JIN KONG, Korea Aerospace University — The vector-spinor $\psi^\mu = \psi \otimes e^\mu$ is the standard representation of Rarita-Schwinger field for particle of spin-3/2. In this work we search for the solution for spin-3/2 spinor legitimate to describe hadron reactions at high energy and show that the representation of $1 \otimes \frac{1}{2}$ state composed of each helicity eigenstate should yield the same result as the one combined by the momentum states from boosting spin-1 and spin-1/2, respectively. Proofs are given in numerical consequences of differential cross section and spin density matrix elements in the $\gamma + N \to \pi + \Delta(1232)$ process. In the similar fashion, the two respresntations discussed above are applied for tensor field $e^{\mu\nu} = e^\mu \otimes e^\nu$ and numerical results in the process $\gamma + N \to f_2(a_2) + N$ are presented for proof of equality.

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