A Humoristic-Sarcastic Poster

Introduction:

The idea of Vector Meson Dominance (VMD) has been suggested before the construction of the Standard Model. This idea aims to provide an explanation for the data on hard photon-hadron interaction. It survived until today probably because the Standard Model has no other explanation for these data.

Reference [1] is a very detailed review article on hard photon-hadron interaction. On p. 267, the Authors publish the following humoristic-sarcastic poster on VMD. This poster alludes that VMD has no physical merits. In particular, the poster calls an Author supporting VMD by the name "F. G. Conspiracy". Other Authors of this kind are called "Dont Know Who" and "You Guess Him". (Non-physicist should note that the poster, which takes the form of a scientific report, contains intentionally a lot of meaningless claims. In particular, it is very well known that the spin of the photon takes the value 1. Thus, the claim ascribed below to VMD supporters, that it takes the value 3/2, is a sheer nonsense.)

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VECTOR DOMINANCE AND THE SPIN OF THE PHOTON

AABBCCDDEFG Collaboration

Abstract

Vector Dominance[1] relates the two reactions

$$\gamma + p \to \pi + N^* \tag{1}$$

$$\pi + N^* \to V_{tr} + p. \tag{2}$$

However, the Lorentz frame in which the transverse polarization of the vector meson V is defined has not been uniquely specified. Various arguments have been proposed in favor of the helicity[2] frame, the conspiracy[3] frame, the Brickwall-Jackson[4] frame, the Breit-Wigner frame, the Dar-Weisskopf[1] frame and the Dontknowwho-Youguessim[5] frame.

This ambiguity has now been settled experimentally by direct measurements of the reactions (1) and (2), using Reggeized colliding beams. Although the experiment was performed in the Feynman gauge, the results are assumed to be gauge invariant and show that vector dominance is seriously violated in all frames unless the photon is assumed to have spin 3/2. Since it seems highly undesirable to discard the attractive vector dominance hypothesis[6], we conclude that the photon has spin 3/2.

REFERENCES AND FOOTNOTES

[1]Vector F. Weisskopf and Arnon Darminance, CERN report (unpublished)

[2]A. B. Helicity and F. G. Conspiracy, Phys. Rev. Letters 20, 37 (1968)

[3]F. G. Conspiracy A. B. Helicity, Phys. Rev. Letters 20, 37 (1968)

[4]Also call Stonewall Jackson frame.

[5]J. T. Dunnohue and J. Huguessim, Phys. Rev. Letters 20, 37 (1968)

[6]J. J. Sakurai, any paper

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References:

[1] T. H. Bauer, R. D. Spital, D. R. Yennie and F. M. Pipkin, Rev. Mod. Phys. 50, 261 (1978).