2002 Vol.37 No.5 pp.579-582 DOI:

Transverse Transition Form Factors from the Nucleon to Nucleonic Excitation States $\Delta(1232)$, $N^*(1535)$ and $N^*(1680)$

MA Wei-Xing,[1,2] DONG Yu-Bing,[2] and ZHOU Li-Juan[1]

[1] Department of Information and Computing Science, Guangxi University of Technology, Liuzhou 545006, Guangxi Province, China

[2] Institute of High Energy Physics, the Chinese Academy of Sciences, Beijing 100039, China

(Received: 2001-10-18; Revised:)

Abstract: Based on the $[SU_{SF}(6)\otimes O(3)]_{sym}\otimes SU_c(3)$ quark model, we study transverse transition form factors from the nucleon to nucleonic excitation states $\Delta(1232)$, $N^*(1535)$, and $N^*(1680)$. The transition form factors $G_T(Q^2)$ are calculated with a realistic and relativistic electromagnetic interaction. Therefore, a fit to experimental data examines to what extent the constituent quark model is workable. The comparison between theoretical results and experimental data shows that the constituent quark model cannot provide a successful description of the transitions.

PACS: 13.60.Rj

Key words: constituent quark model, electromagnetic interaction, transverse transition form factor

[Full text: PDF]

Close