2001 Vol.35 No.6 pp.711-716 DOI:

Description of E4 Transitions in A=192,194,196,198 Platinum Isotopes in a Microscopic sdgIBM-1

ZHANG Zhan-Jun,[1] YANG Jie,[2] WANG Xin[3] and LIU Yong[4]

[1] Laboratory of Magnetic Resonance and Atomic and Molecular Physics, Wuhan Institute of Physics and Mathematics, The Chinese Academy of Sciences, Wuhan 430071, China

[2] Department of Physics, Anhui University, Hefei 230039, China

[3] Department of Physics, Wuhan University, Wuhan 430072, China

[4] Institute of Particle Physics, Central China Normal University, Wuhan 430079, China

(Received: 2000-6-27; Revised: 2000-8-29)

Abstract: Influence of the effective fermion hexadecapole force newly incorporated in a microscopic sdgIBM-1 on spectra, reduced E2 and E4 transition matrix elements (T(E2)s and T(E4)s) in the even-even platinum isotopes (A=192,194,196,198) is investigated in terms of numerical calculations. It is found that the introduced interaction causes only limited modification to the spectrum and T(E2)s, apart from a few exceptions. However, it plays an essential role in describing E4 transitions. Thus in the case that the interaction is incorporated with certain strength, a reasonable description of all the E4 transitions in the platinum isotopes is reached in the microscopic sdgIBM-1 in comparing both to experimental data and the results calculated in phenomenological boson model.

PACS: 21.60.Ev, 21.10.Re, 23.20.-g

Key words: hexadecapole force, microscopic sdgIBM-1, E4 transition

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