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M1 transitions between low-lying states in the sdg-IBM-2

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— The interplay between collective and single-particle degrees of freedom for nuclei in the $A=90$ region have recently been under investigation. In Molybdenum and Ruthenium nuclei, collective symmetric and mixed-symmetric structures have been identified, while in Zirconium, underlying shell-structure plays an enhanced role. Collective symmetric structures appear when protons and neutrons are in phase, whereas mixed-symmetric structures occur when they are not. The one-phonon 2^+ mixed-symmetric state was identified from strong M1 transitions to the 2_1^+ state. Similar transitions were observed between higher-spin states, and are predicted by the shell model. These phenomena will be investigated within the sdg Interacting Boson Model 2 in order to obtain a better understanding about the structure of the states involved, and results from first model calculations will be presented. Work supported by US DOE under grant number DE-FG02-91ER-40609.

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