2 - 1 Positive-parity States in Doubly Odd Nucleus ^{104}Ag

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High-spin states in the doubly-odd nucleus ^{104}Ag has been studied via the ^{97}Mo(^{11}B, 4n) ^{104}Ag reaction at a beam energy of 50 MeV at the tandem accelerator laboratory of the China Institute of Atomic Energy. A rich level scheme with six band-like structures has been established on the basis of coincidence relations, intensity balances and energy sums. The proposed level scheme for the ^{104}Ag nucleus is shown in Fig. 1. The positive-parity bands D and E are observed for the first time in the present experiment.

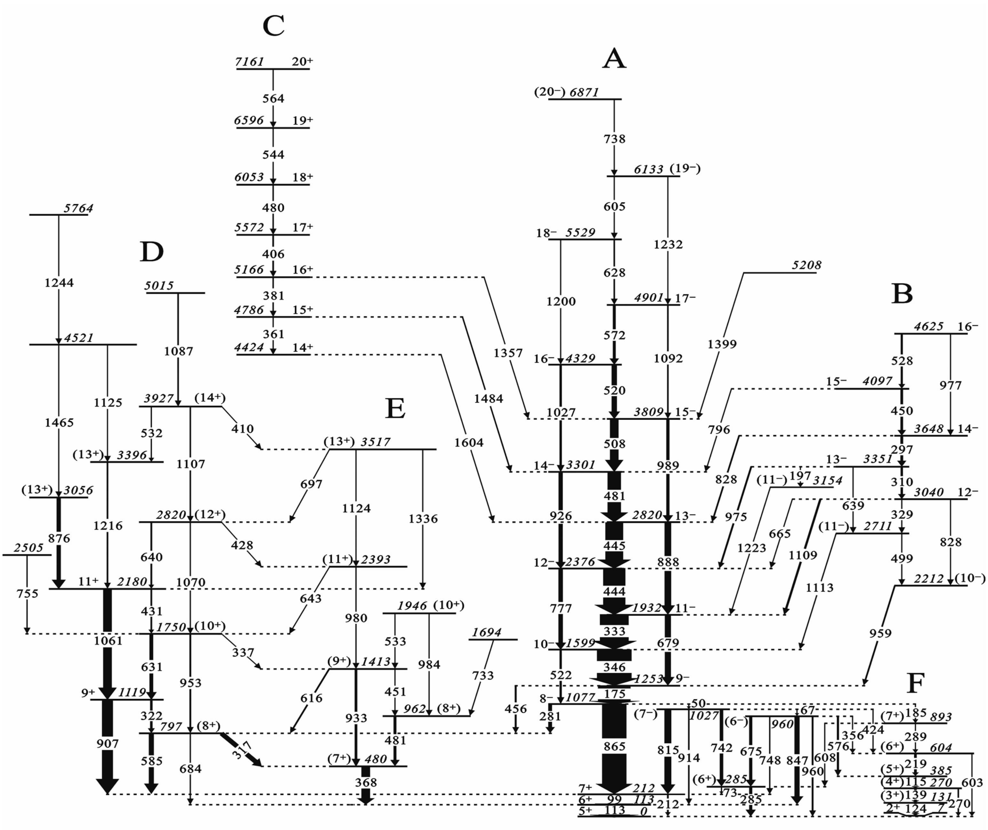

Fig. 1 Level scheme of ^{104}Ag deduced from the present work.

The ^{104}Ag nucleus has both seven protons and neutrons outside the ^{90}Zr core. Here, the valence protons lie in the upper part of $g_{9/2}$ orbital while the valence neutrons lie in the $d_{5/2}$, $g_{7/2}$, and low$-\Omega$ $h_{11/2}$-intruder orbitals. The analogous positive-parity structures have been observed in the adjacent odd-odd silver isotopes ^{100}Ag[1], ^{102}Ag[2] and ^{106}Ag[3]. From the systematic point of view, band D has been identified as the $\pi g_{9/2}\otimes\upsilon d_{5/2}$ configuration based on the 7^{+} state (212 keV) while band E as the $\pi g_{9/2}\otimes\upsilon g_{7/2}$ configuration. The detailed analysis is still in progress.

References

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