

## Signatures for Octupole Collectivity in $T_z = 2$ nucleus $^{94}\text{Rh}$

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Excited states in the neutron-deficient nucleus  $^{94}\text{Rh}$  were populated via  $^{40}\text{Ca}(^{58}\text{Ni}, 3p1n)$  reaction at the Grand Accélérateur National d'Ions Lourds (GANIL) accelerator facility. The experimental set-up consisted of the EXOGAM germanium detector array [1], coupled to the Neutron Wall liquid scintillator array [2] and the DIAMANT charged particle detector system [3,4]. The level scheme has been extended up to an excitation energy of  $\approx 10$  MeV with the tentative spin-parity assignments. The search for E3 collectivity is motivated by our recent discovery of an E3 transition (1977 keV) together with the observation of strong E1 transition (697 keV) depopulating from the  $11^-$  state in the  $^{94}\text{Rh}$  nucleus. The measurements provide strong evidence that the spin-parity of this state is  $11^-$  and the observation of its E3 decay to the ground state, provides direct evidence for octupole collectivity in  $^{94}\text{Rh}$ . Large-scale shell model (LSSM) have been performed, supporting the interpretation of the  $11^-$  state as a collective octupole-vibrational state.

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