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Interplay between single-particle and collective excitations in argon isotopes populated by transfer reactions

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Multinucleon transfer reactions have been investigated in $^{40}\text{Ar}+^{208}\text{Pb}$ via particle-gamma coincidences with the Prisma+Clara set-up. New states have been identified and the strongly populated states have been discussed and compared with the sd-pf shell model calculations. In odd Ar isotopes, we identified a significant population of $11/2^-$ states, reached via neutron transfer. Their structure matches a stretched configuration of the valence neutron coupled to the vibration quanta. This fact has been used to consistently follow the evolution of deformation in odd Ar isotopes.

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