High-Spin Spectroscopy of $^{124,125,126}$Xe


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High-spin states in the $^{124,125,126}$Xe have been populated in the $^{82}$Se($^{48}$Ca,$xn$)$^{130-x}$Xe reaction at a beam energy of 206 MeV. The beam was provided by the ATLAS accelerator at Argonne National Laboratory and γ-ray coincidences were measured with the GAMMASPHERE spectrometer array. The main goal of the experiment was to search for hyperdeformation in Xe nuclei [1], but the data also contain rich spectroscopic information on normal-deformed states. More than 10 long bands extending into the spin region of $\sim 60 \hbar$ were identified in $^{125}$Xe and $^{126}$Xe. In $^{125}$Xe, previously known rotational bands at low spins [2] are confirmed. Several of the high-spin bands are connected to the normal-deformed structures but several are still floating. Earlier known structures in $^{124}$Xe [3,4] are confirmed and a new side band was found. Irregular structures on top of the yrast band are identified as a fingerprint of band termination. Possible configuration assignments of the different structures will be discussed.

References:

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