0^+ STATES AND COLLECTIVE BANDS IN DEFORMED ACTINIDE NUCLEI

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By means of the (p, t) reaction we studied the excitation spectra of 0^+ states in the deformed nuclei ^{228}Th, ^{230}Th, and ^{232}U, using the Q3D magnetic spectrograph facility at the Munich tandem accelerator. At small reaction angles the 0^+ transfer angular distributions have steeply rising cross sections which allow identifying these states in otherwise very complicated and dense spectra. For each of these nuclei we resolve typically about ten excited states with safe 0^+ assignments. The studied excitation energies range up to 2.5, 2.7, and 2.3 MeV, respectively. The results are compared with IBA calculations in the *spdf*-boson space. This highly schematic collective model description, including octupole collectivity, but neglecting other relevant degrees of freedom, gives numbers of excited 0^+ states in these actinide nuclei that are rather close to the observed ones. Sequences of states are selected which can be treated as rotational bands. Inertial parameters are obtained at fitting energies of these bands and they are discussed in connection with the IBM calculations.