INTERBAND TRANSITIONS BETWEEN SUPERDEFORMED BANDS IN ^{87}Nb: EVIDENCE FOR A SUPERINTRUDER ORBITAL[1]

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Four superdeformed bands have been observed in ^{87}Nb. Transition quadrupole moment measurements on three of the bands confirm superdeformed shapes. Two of the bands were observed to mutually interact, and cross transitions between them have been observed. This is the first time such behavior has been observed in mass 80 superdeformed bands. Once this interaction is accounted for, a second crossing appears in one of the bands. This crossing is interpreted as evidence for the occupation of the $i_{13/2}$ superintruder orbital, making ^{87}Nb the lightest nucleus by far in which the shape-driving properties of this orbital can be studied.

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