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Widening the Scope of a Partial Dynamical Symmetry[1] WESLEY PEREIRA[2], Essex College ,Newark,New Jersey 07102, RICARDO GARCIA[3], University of Puerto Rico, Rio Piedras Campus, LARRY ZAMICK, Rutgers Univ —
In a single j shell calculation in which only T=1(even J) two-particle matrix elements were non-zero there was a partial dynamical symmetry e.g. for 2 protons and 2 neutrons in the $f_{7/2}$ shell there is a degeneracy of states with angular momenta I=3,7,9,10. These have non -zero components only for (J_p, J_n) =(4,6) or (6,4). These I's cannot occur for 4 identical partices (^{44} Ca).We then consider a "123" interaction which for J=0 to 7 is (0,0,1,0,2,0,3,0). Then I=6 and I=8 also come into play. Fot these (J_p+J_n) is a good quantum number .One gets an equally spaced multidegerate levels ("vibrational spectra") with separation of 1.5 MeV. Each of these levels has fixed (J_p +J_n . For (J_p+J_n) equal to 6 we have I=3 an I= 6 as ;for 8 we get 6,7 ,8; for 10,we get 3,7,9,10 and for 12 we get 10,12. In the $g_{9/2}$ shell with a "1234"(J_p +J_n) ranges from 8 to 16 and in $h_{11/2}$with "12345" from 10 and 20.

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