

Abstract Submitted  
for the APR13 Meeting of  
The American Physical Society

**Odd-J Pairing Interaction** LARRY ZAMICK, ALBERTO ESCUDEROS, Rutgers University — We consider in the  $g_{9/2}$  shell an interaction which acts only when a neutron and proton act in a state with  $J=J_{\max}=2j=9$ . We use the abbreviated notation for a unitary  $9j$ -symbol  $U(J_x J_p J_n J) = \langle (jj)_9 (jj)_{J_x} - (jj)_{J_p} (jj)_{J_n} \rangle_J$ . The Pauli principle demands that  $J_p$  and  $J_n$  are both even. The matrix element of the hamiltonian is  $E(9) * S_{J_x} U(J_x, J_p J_n J) U(J_x J_p' J_n' J)$ . For  $J=0$  and  $1$  the Hamiltonian is a single separable term and the lowest eigenfunctions are the components of unitary  $9j$  symbols,  $\sqrt{2} U(9 J_p J_n 0)$  for  $J=0$  and  $2 U(8 J_p J_n 1)$  for  $J=1$ . These states have isospin  $T=0$ . For  $J=2$  and higher the Hamiltonian is no longer separable but there still some simple states. For  $J=2$  there is a  $T=1$  state  $2U(8 J_p J_n 2)$  and for  $J=3$   $T=0$ ,  $2U(7 J_p J_n 3)$ . For all these  $J_x$  serves as a good quantum number. The 2 lowest  $J=2$   $T=0$  states are admixtures of  $\sqrt{2} U(9 J_p J_n 2)$  and  $2 U(7 J_p J_n 2)$  but the coupling is so weak that these are almost separate eigenstates with quantum numbers  $J_x=9$  and  $J_x=7$  respectively. The coupling matrix element is  $-1/2 U(9 9 7 2) = 0.00009113$ . The normalizations of the 2 admixed states are respectively such that  $N_{-2} = 1/2 \cdot U(9 9 9 2) = 0.499993950935$  and  $1/4 \cdot 1/2 U(7 9 7 2) = 0.250376267385$ .

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Date submitted: 26 Dec 2012

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