Abstract Submitted
for the DNP06 Meeting of
The American Physical Society

p-n configurations of symmetric and mixed-symmetric states M.
PERRY, WNSL Yale Univ., FSU, V. WERNER, WNSL, N. PIETRALLA, WNSL, 
N. BENCZER-KOLLER, Rutgers University — The first $2^+$ state in collective 
even-even nuclei is a proton-neutron (pn) symmetric quadrupole excitation. It has a 
mixed-symmetric counterpart, which has p-n anti-symmetric parts in the wavefunc-
tion. A strong p-n interaction mixes the proton and neutron configuration, creating 
a low-lying symmetric state and a higher-lying mixed-symmetric state. The signifi-
cant energy difference between the proton and neutron $j=2$ configurations and rather 
weak mixing between the proton and neutron state wavefunctions in Zr isotopes re-
sults in a $2^+_1$ state with neutron dominance and a $2^+_2$ state with proton dominance, 
which was identified as the one-phonon mixed-symmetry $2^+$ state. This signature in 
Zr provides an ideal basis for studying configuration mixing. This mixing is studied 
experimentally by measuring g factors. Theoretical predictions will be compared 
with recent experimental results.

Michelle Perry
Florida State University

Date submitted: 31 Jul 2006
Electronic form version 1.4