Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

On transition strengths of E1, E2, & E3 in the regions of mixed quadrupole-octupole collectivity JOHN RASMUSSEN, LBNL, Y.X. LUO, Vanderbilt/LBNL, JOSEPH HAMILTON, A.V. RAMAYYA, Vanderbilt Univ., RAUL DONANGELO, Instituto de Física, Facultad de Ingeniería, C.C. 30, 11300 Montevideo, Uruguay — We review the main highlights of experiment and theory for the lowest three electric multipolarities, B(E1), B(E2), and B(E3), for nuclei where quadrupole and octupole collectivity may both occur. The principal regions of interest are around 6 to 12 protons and 6 to 12 neutrons beyond the doubly-closed shell nuclei ^{132}Sn and ^{208}Pb. We examine microscopic theoretical calculations[1] in which deformations are driven by Nilsson orbitals near the Fermi energy. We also focus attention on recent experimental[2] studies of ^{152}Sm, where the ground band and associated K=1^- band are mirrored by another 0^+ and 1^- band about 0.7 MeV higher in energy. We suggest that a monopole pairing force alone is insufficient to cause this mirroring, and monopole-plus-quadrupole pairing or a more realistic nucleon-nucleon force is needed.

[1]W. Zhang et al., Phys. Rev. **C 81**, 034302 (2010) and references therein.
[2]P.E. Garrett et al., Phys. Rev. Letts. 103, 062501 (2009)

John Rasmussen
LBNL

Date submitted: 29 Jun 2010 Electronic form version 1.4