Shapes and structure for $^{68}Zn_{38}$. in comparison with isotonic ^{66}Ni and ^{70}Ge.

^{68}Zn in an interesting nucleus. In Alex Brown's Letter noted below, the quenching effect on collectivity of a $p_{1/2}$ orbital [s boson] is noted. At N = 38, the $p_{3/2}$ and $f_{5/2}$ neutron orbitals are "in principle" filled. **As the next orbital is the $p_{1/2}$ orbital, collectivity is inhibited.** If many pairs are broken, it is possible to construct a superdeformed structure reported by Devlin et al., who promised a follow-up report with results for lower energy structure. **They indicated a possible 1508-keV linking transition.** We do see a few counts at the energy in gates on the negative-parity sequence. However, in this talk, I want to raise the question,

"are there hints of either shape coexistence or triaxiality in ^{68}Zn.

Thanks to Libby McCutchen for an advanced copy of the ^{68}Zn section of the Nuclear Data Sheets in the new format. It is much improved.

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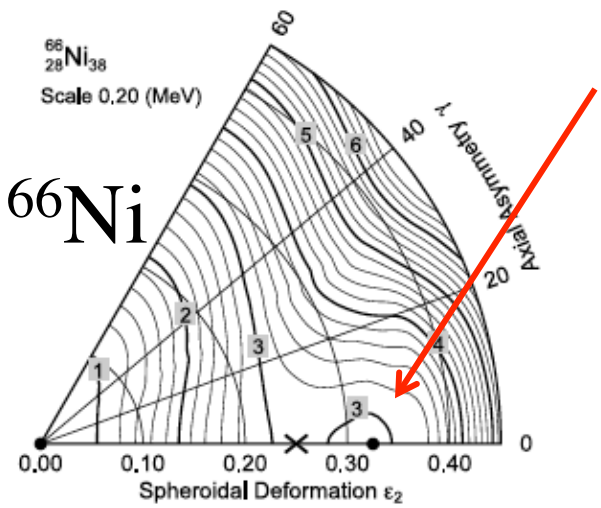
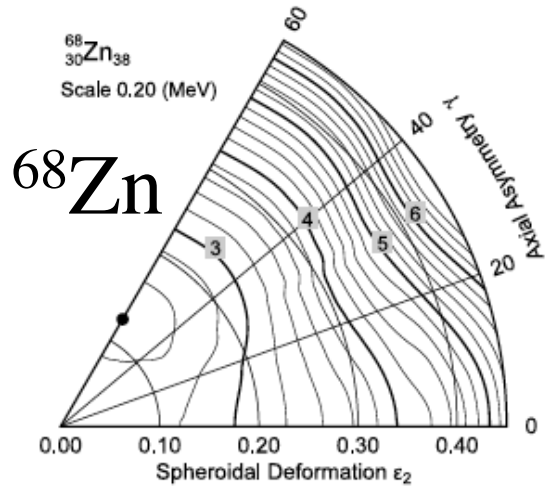
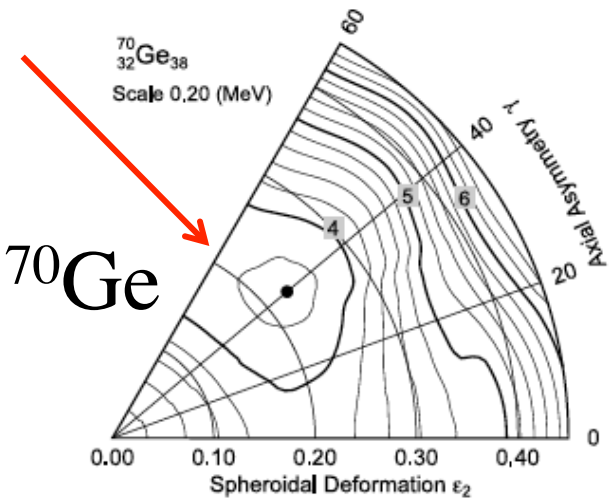
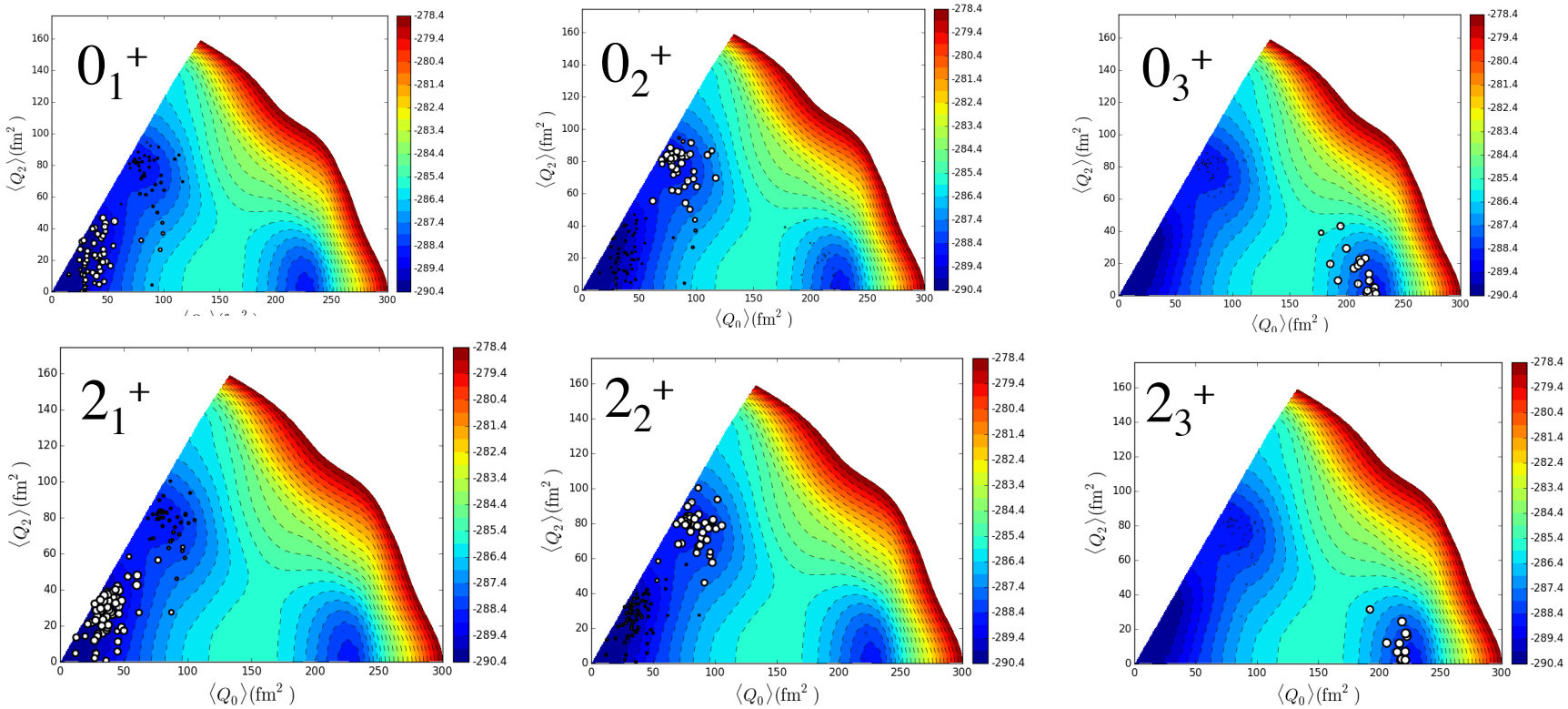
This material is based upon work supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics under Contract numbers DE-AC02-06CH11357 and DE- AC02-05CH11231 and under Grant Numbers DE-FG02-94ER40834, by the National Science Foundation under grant PHY-1102511 and by NNSA under grant DE-NA0000979. This research used resources of ANL's ATLAS facility, which is a DOE Office of Science User Facility.







Above from Möller et al., below from Tsunoda and Otsuka

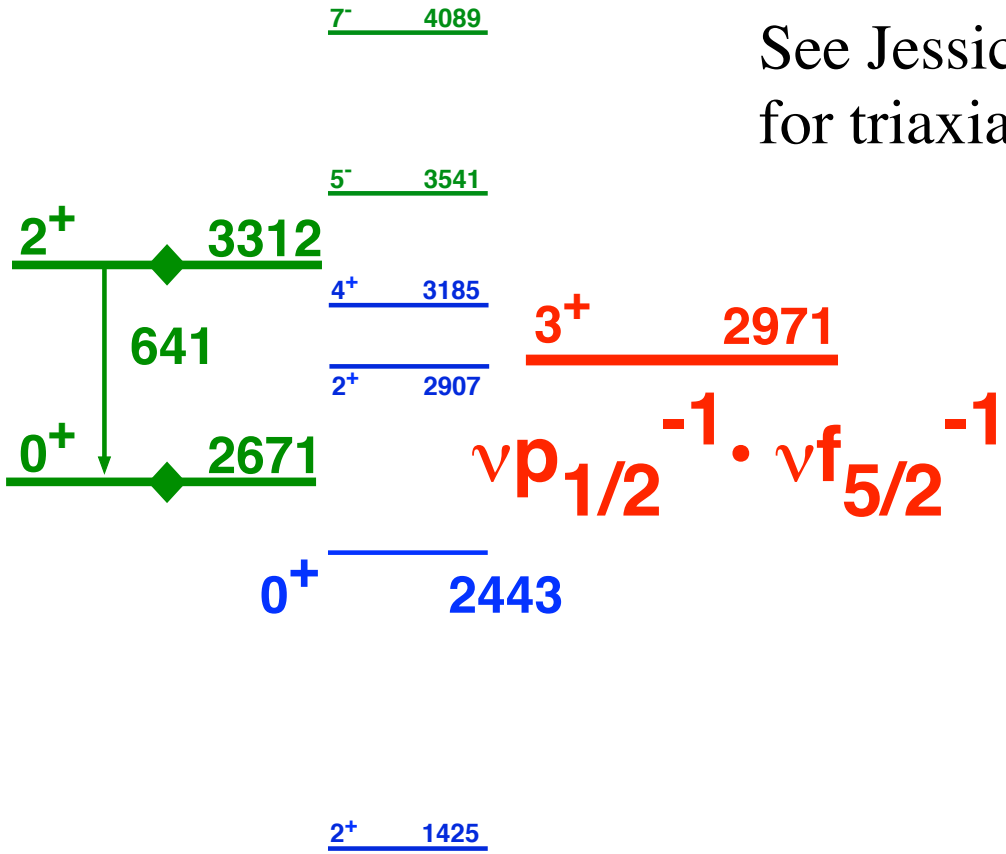


^{66}Ni

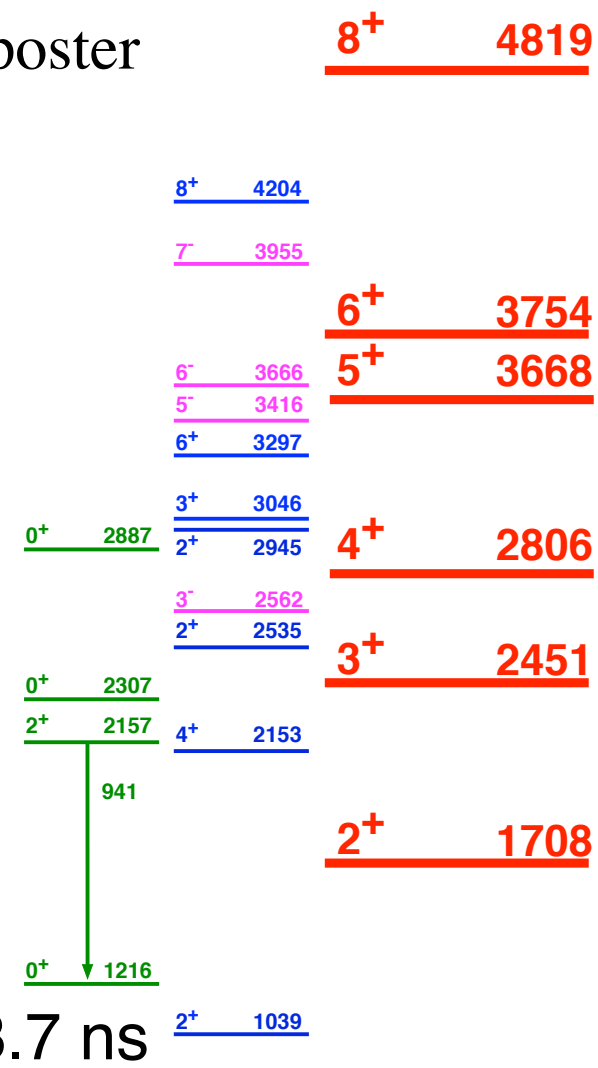
0^+

2^+

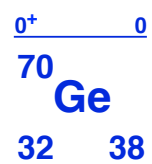
See Jessica Harker's poster for triaxiality in ^{72}Zn

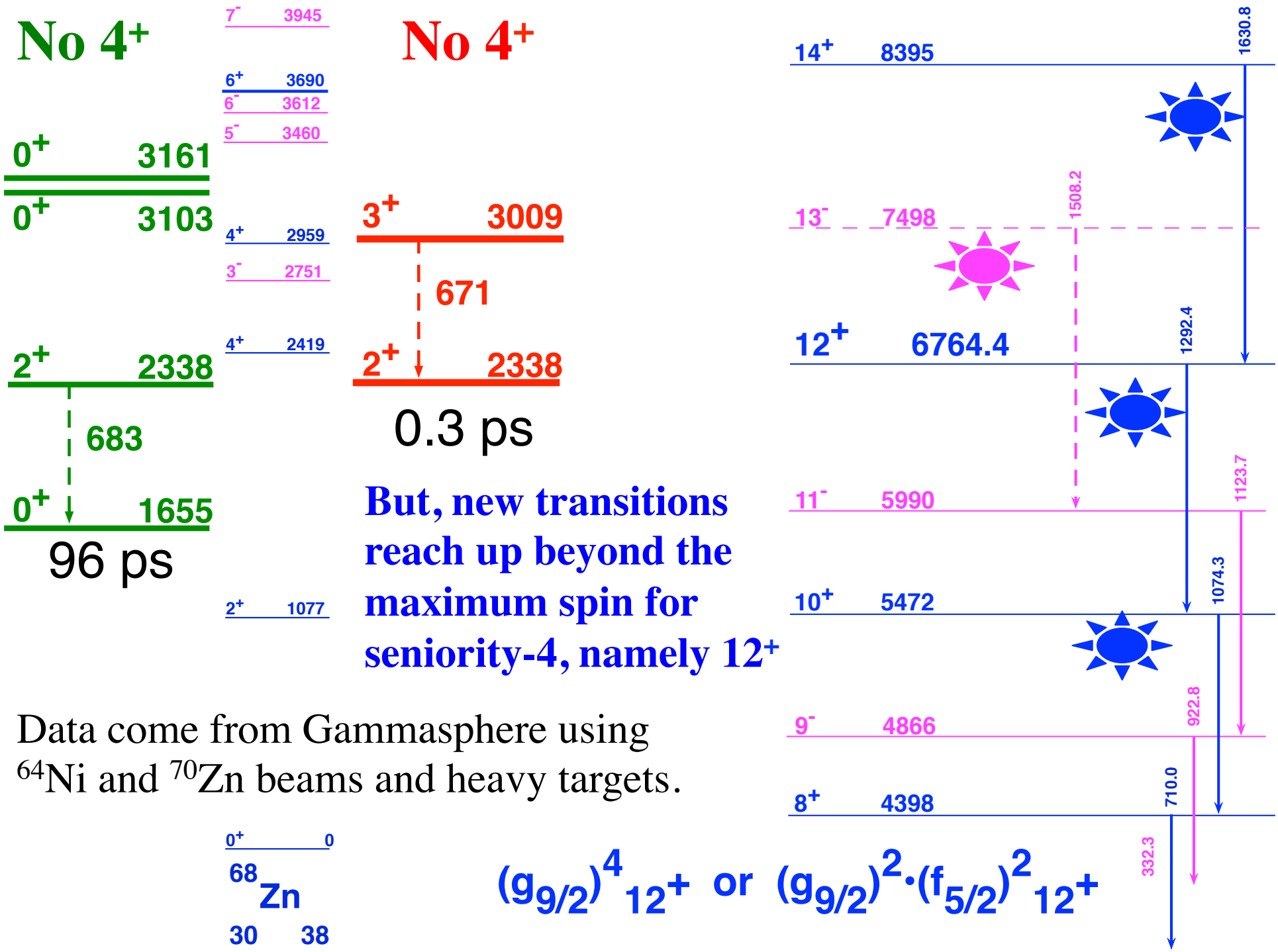


W. B. Walters et al., AIP Conference Proceedings **1681**, 030007 (2015).



^{70}Ge: Raju et al. Phys. Rev. C **93**, 03317 (2016).




No 4+
No 4+
7- 3945
6+ 3690
6- 3612
5- 3460
0+ 3161
0+ 3103
4+ 2959
3- 2751
4+ 2419
2+ 2338
683
0+ 1655
96 ps
2+ 1077
3+ 3009
671
2+ 2338
0.3 ps
But, new transitions reach up beyond the maximum spin for seniority-4, namely 12+
14+ 8395
1630.8
13- 7498
1508.2
12+ 6764.4
1292.4
11- 5990
1123.7
10+ 5472
1074.3
9- 4866
922.8
8+ 4398
710.0
332.3
Data come from Gammasphere using 64Ni and 70Zn beams and heavy targets.
0+ 0
68Zn
30 38
(g9/2)4 12+ or (g9/2)2·(f5/2)2 12+