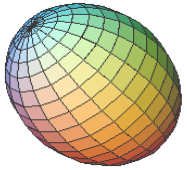
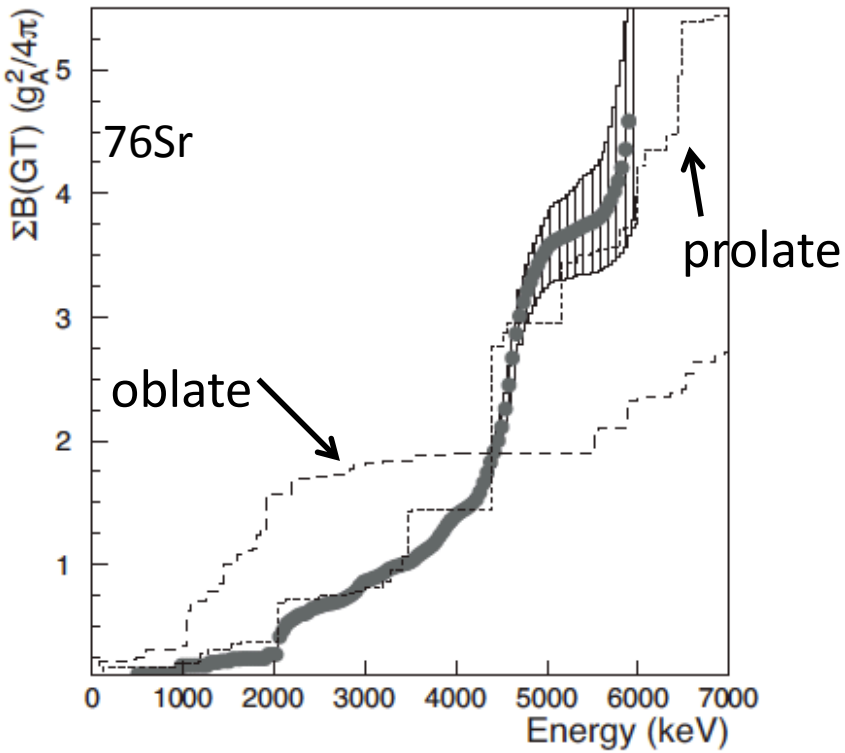
Possible TAS and TAS+4pi measurements in Zr-Mo region

Valencia, Argonne, Jyvaskyla, Surrey, etc., etc.
Collaboration

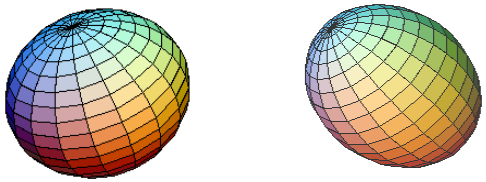
Some early applications

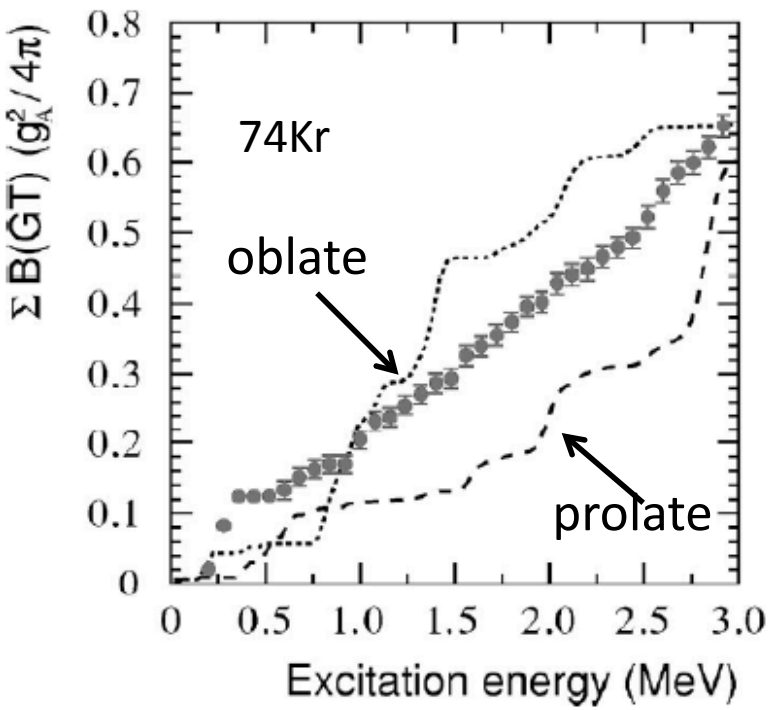
Very prolate N=Z nucleus





Mixture of prolate and oblate





E. Nácher ***et al. PRL 92 (2004) 232501 and PhD thesis Valencia***
Ground state of 76Sr prolate (β2~0.4) as indicated in Lister et al., PRC 42 (1990) R1191

E. Poirier ***et al., Phys. Rev. C 69, 034307 (2004) and PhD thesis Starsbourg***
Ground state of 74Kr:(60±8)% oblate, in agreement with other exp results and with theoretical calculations (A. Petrovici et al.)

β-decay properties of neutron-rich Zr and Mo isotopes

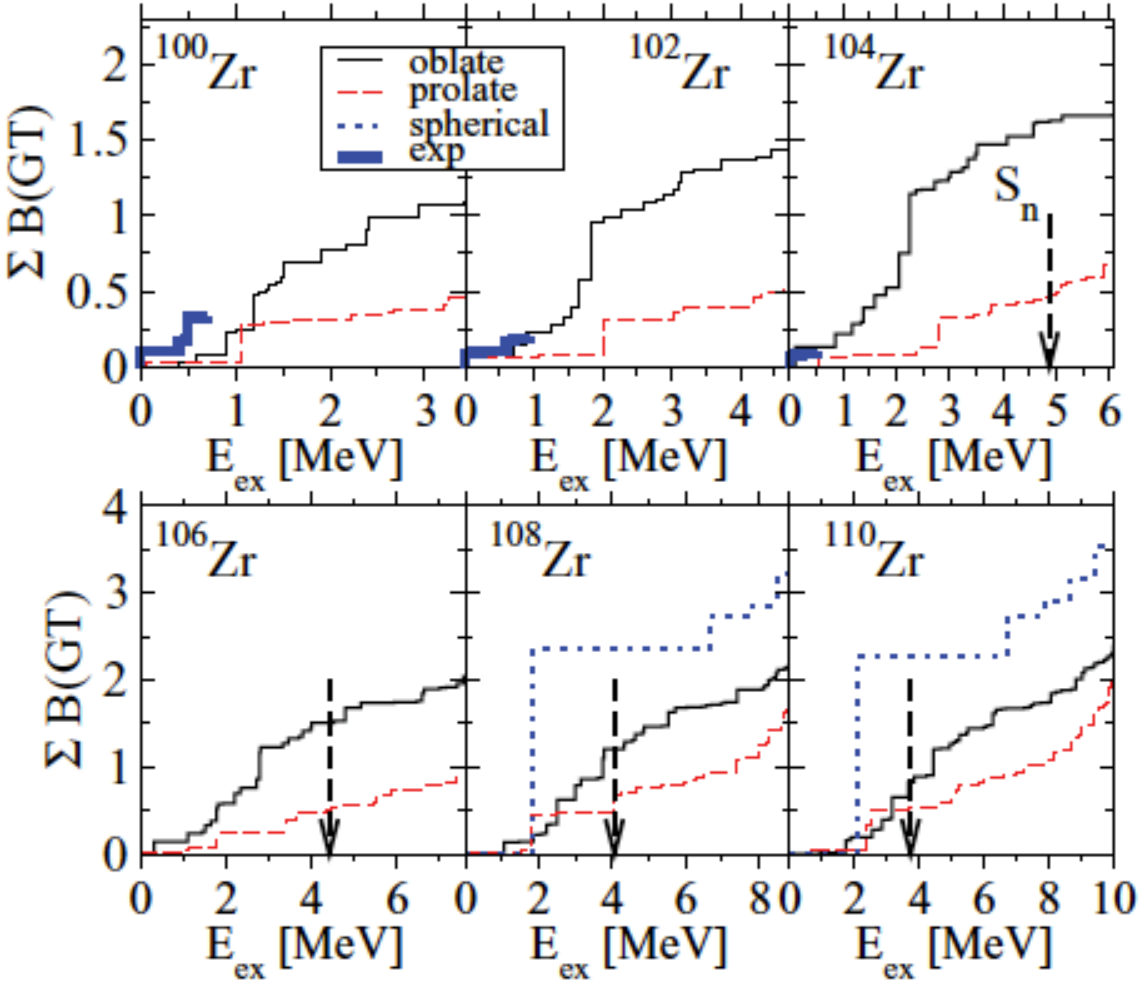


FIG. 5. (Color online) QRPA-SLy4 accumulated GT strengths in Zr isotopes calculated for the various equilibrium shapes. In each isotope the energy range considered corresponds to its Q_β value. S_n values are shown by dashed vertical arrows.

β-decay properties of neutron-rich Zr and Mo isotopes

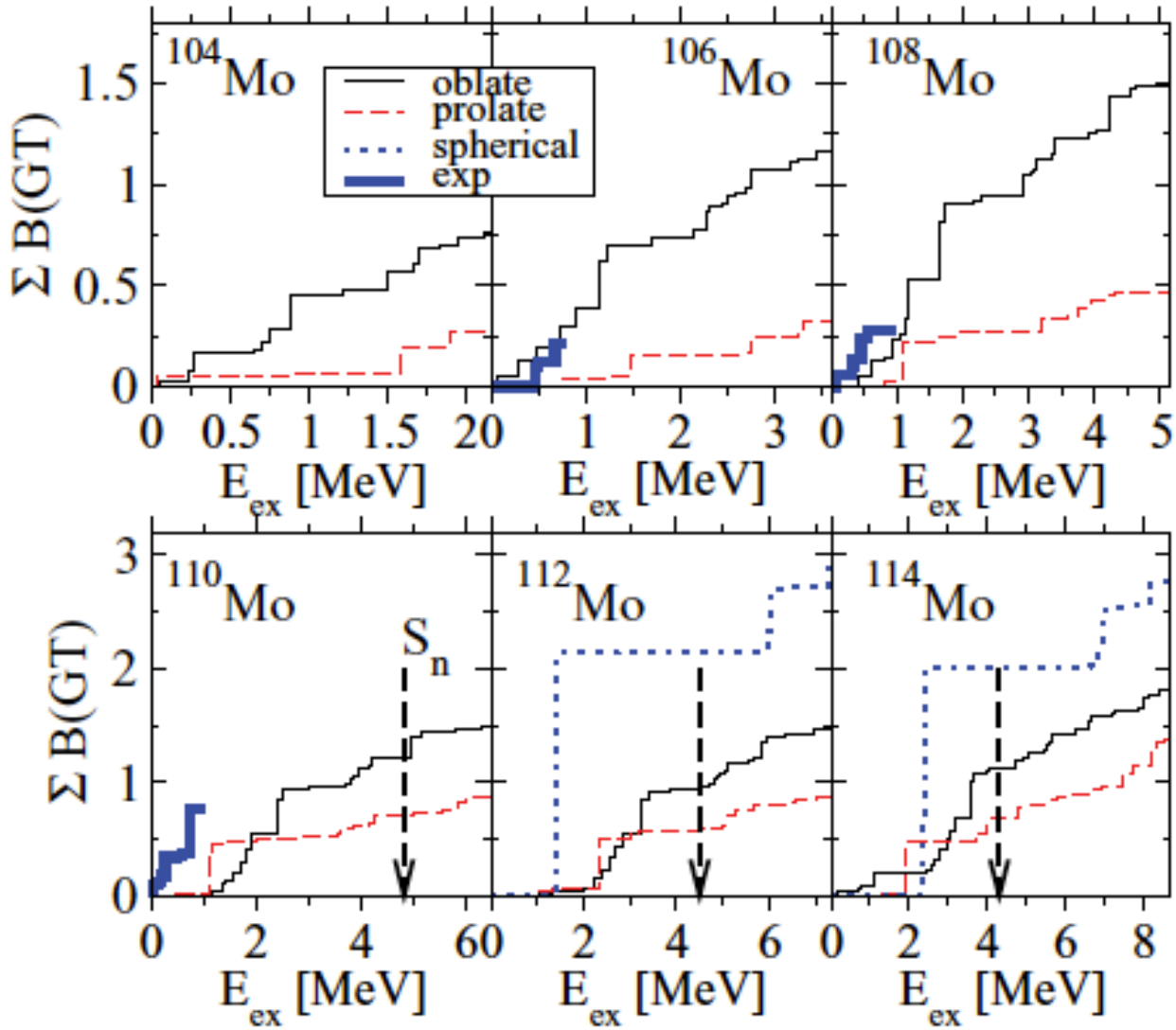


FIG. 6. (Color online) Same as Fig. 5, but for Mo isotopes.

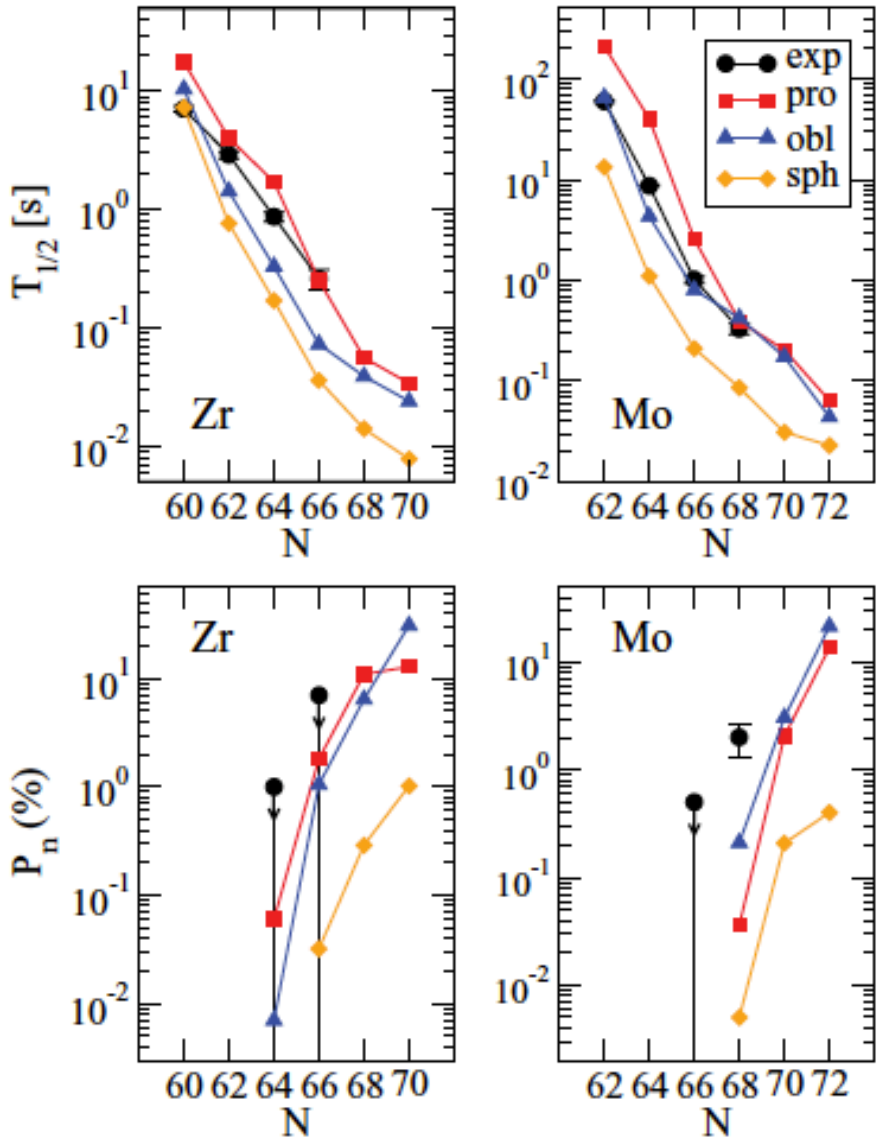


FIG. 10. (Color online) Measured β-decay half-lives and P_n values for Zr and Mo isotopes compared to theoretical QRPA results calculated from different shape configurations, using SLy4 to compute Q_β and S_n in the heavier isotopes.

Yield data taken from the "Prop. for the 252Cf upgrade to the ATLAS facility, *G. Savard, R. Pardo*"
Many details to be clarified and very tentative. We can think of measurements at Argonne/Jyvaskyla depending on the yields/ case

Isotope	Yield (ion/s)	Proposed measurement
106Mo	9.3x10E6	TAS
108Mo	1.8x10E6	TAS
110Mo	6.2x10E4	TAS+4Pi
112Mo	?	
100Zr	5.5x10E6	TAS
102Zr	3.9x10E6	TAS
104Zr	6.0x10E5	TAS+4Pi
106Zr	?	
108Zr	?	