Names: _____

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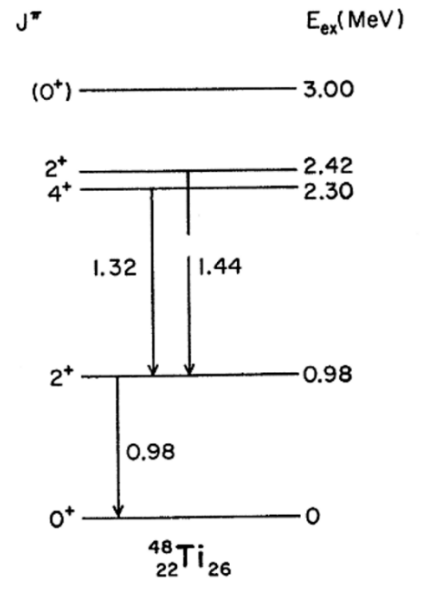
Group Activity 4 **Due:** In class, September 2nd

1. In terms of frequencies, $\omega_{rotation} \ll \omega_{vibration}$. Why?

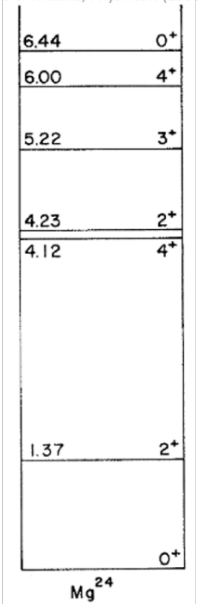
2. ^{122}Te is a spherical nucleus with $E(2_1^+) \approx 564$keV. Predict $E(4_1^+)$ and $E(6_1^+)$ and compare to experiment.

3. Which of these nuclides is spherical and which is deformed? How can you tell?

Matin, Church, & Mitchell Phys. Rev. (1966)



Bearse & Yntema, Phys. Rev. (1968)



4. Compare the non-deformed and deformed shell-model predictions for the ground-state J^{π} for ^{19}F, ^{19}Ne, ^{21}Ne, and ^{23}Na ($\beta \approx 0.1$) to the experimentally determined values.