

Names: \_\_\_\_\_  
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PHYS 7501, FS 2017

**Group Activity 9**

**Due:** In class, September 26<sup>th</sup>

1. Based on selection rules, which  $\gamma$ -decay types could link the  $3/2^+$  state at  $\sim 4\text{MeV}$  in  $^{19}\text{Ne}$  to the  $1/2^+$  ground state?
2. Calculate Weisskopf estimates for  $t_{1/2}$  for the transitions described in Problem 1. Compare your answers to the experimental limit provided on the NNDC webpage.
3. As you know,  $\alpha \propto Z^3$  ...so why on earth does  $^{16}\text{O}$  exhibit significant internal conversion?