2021 - PHY 981 - Homework set 9 (due Mar 21)

1. **link to lecture notes**
   link to nushellx.zip
   link to toi.zip link to mingw-w64.zip

2. **Read Chapters 20-21.**

3. **For ^{160}Gd what it the β_2 value obtained from the experimental $B(E2,\uparrow)$?**

4. **For ^{160}Gd what is the increase (from spherical) of the rms charge radius due to this deformation?**

5. **Use the dens to obtain the spherical rms charge radius for ^{160}Gd with the Skx Skyrme interaction.**

6. **Add the increase from the deformation to obtain the total rms charge radius. Compare to experiment?**

7. **What is the moment of itertia for ^{160}Gd obtained from the energy of the 2^+ state?**

8. **A recent experiment for ^{43}S at the NSCL was interpreted in terms of deformed Nilsson orbit model (paper attached). What are the $\Omega[N, n_z, \Lambda]$ quantum numbers associated with the observed data.**