

## Nuclear Lunch Questions:

1. What are nuclear Energy Density Functionals (EDFs)? (**Justin B.**)
2. What is HFB calculation and constrained HFB calculation? What does it mean by HFB calculation spanned by both the axial and triaxial quadrupole mass moments? (**Nisha**)
3. What is the significance of the nuclear deformation phenomenon? Explain in relation to the deformation parameters  $\beta$  and  $\gamma$ ? (**Gulakshan**)
4. Introduce in very short the following quantities  $\Delta V$ ,  $B_{00}$ ,  $B_{01}$ ,  $B_{11}$ , and  $I_k(k=1,2,3)$  in relation to the paper? (**Robert**)
5. What are neural networks? Describe it in relation to the paper. (**Yenuel**)
6. How was the training data gathered/formatted? Also, what are their concerns in regards to over-training? Are there any measures put in place to avoid over-training? (**Jacob**)
7. The ADAM algorithm was mentioned a lot in the paper. What is it and how does it work? (**Holly**)
8. How much time is saved in getting the results by using the trained neural network vs. performing these calculations ad hoc? (**Shiv**)
9. It seems machine learning has great accuracy, low cost, and overall will take less time. Why has it taken so long for machine learning to be used in nuclear deformation? (**Kristyn**)