

## Nuclear Lunch Questions for February 17<sup>th</sup> Discussion

### Paper:

*Can Extreme Electromagnetic Fields Accelerate the Decay of Nuclei?*

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1. What is the Kramers-Henneberger transformation? (**Yenuel**)
2. Can these extreme electromagnetic fields be used to control other decay channels apart from alpha decay? (**Robert**)
3. Is the assumption that the alpha particle is stimulated by the field while it is still part of the nucleus or is it purely the potential changing outside the nucleus that allows easier tunneling? (**Shyam**)
4. Do they also use magnetic field in their calculation? If not, what effect might it create? Will it enhance or even decrease more? (**Joey**)
5. If we did have the lasers that would induce this kind of accelerated alpha decay of nuclei, what kind of applications could this be used for other than management of nuclear waste? (**Gula**)
6. How is the critical field defined/calculated? (**Alexandra**)
7. What are the limitations on the laser facilities to produce higher energy lasers? Did the applied laser energy get lost as waste and could we do something to reduce the loss to enhance laser power? (**Shiv**)
8. What is the alpha decay pre-cluster model? (**Justin Bryan**)
9. Why are the WKB and ITM methods used in the paper? What is the purpose of using these methods? Are there other methods? (**Ibrahim**)
10. If you need to process tons of nuclear waste, is using a laser to enhance the decay rate practical? (**Nisha**)