

Nuclear Lunch Questions for 11 September 2013

Follow up to the article:

An r-Process Kilonova Associated with the Short-Hard GRB 130603B,

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1. What is a light curve, and why is it important? Why is it supposed to be difficult for visible light to get out of a supernova? (**Bijaya**)
2. How does one measure the nuclear abundance for our solar system? Why does it have a “see-saw” form? (**Shamim**)
3. What is the typical energy of the γ -rays in GRB’s? How can we identify GRB’s from Earth? (**Nick**)
4. If the r-process happens within seconds, how do we know it’s r-process occurring? Are there nucleosynthesis processes other than the p-, r-, and s-processes? If so, what are they? (**Sushil**)
5. What are the problems in hydrodynamic modeling of the type II SN when looking at heavy nuclei formation? (**Mongi**)
6. How does entropy play a role in the development of heavier elements? (**Linda**)
7. Why is iron the last element made before a core collapse? (**Norman**)
8. How do you distinguish which star will undergo GRB and which will SN? (**Anthony Paul**)
9. In the model of two neutron stars merging, the source of neutrons is apparent, but what seed nuclei are used? (**Arbin**)

Additional Questions (discussed by the whole group, if time permits)

10. Why is IR-band emission not explained by dust from kilonovae?
11. How much do we know about the r-process? If gold requires such a process, is it possible to create the conditions to make gold on Earth?
12. Does this observation imply that the kilonova has overtaken the supernova as the source to power the r-process?