Summary

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1st ESSnuSB+ WP5 in-person meeting
24 May 2023

Things we should do while here

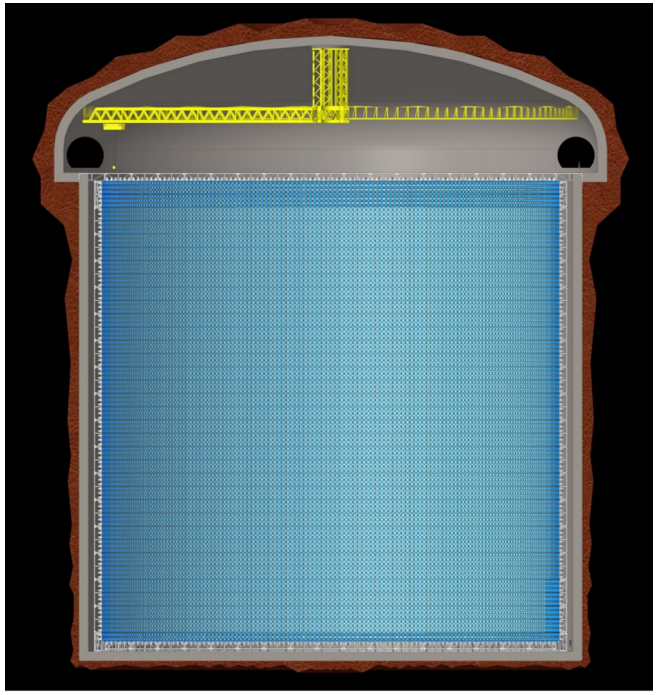
- Finalise:
  - D1.3 Initial facility parameters
  - Text for the WP5 part of ESSnuSB web page
    - old ones here: https://essnusb.eu/wp5/ https://essnusb.eu/wp6/
- Discuss / start
  - MC software framework
  - detector design / optimization: lemon-D, viking, SFGD, Gd doping, Far detector, …
  - phenomenology:
    - near detectors: steriles, new phyiscs
    - far detectors: atmospherics, supernova, diffuse supernova, solar, reactor, geoneutrinos, ...
  - measurement of the cross-section: fundamentals, statistical approach, …
  - analysis beyond GLoBES: MC samples, reweighting, statistics, …
  - …and more

Things we did while here

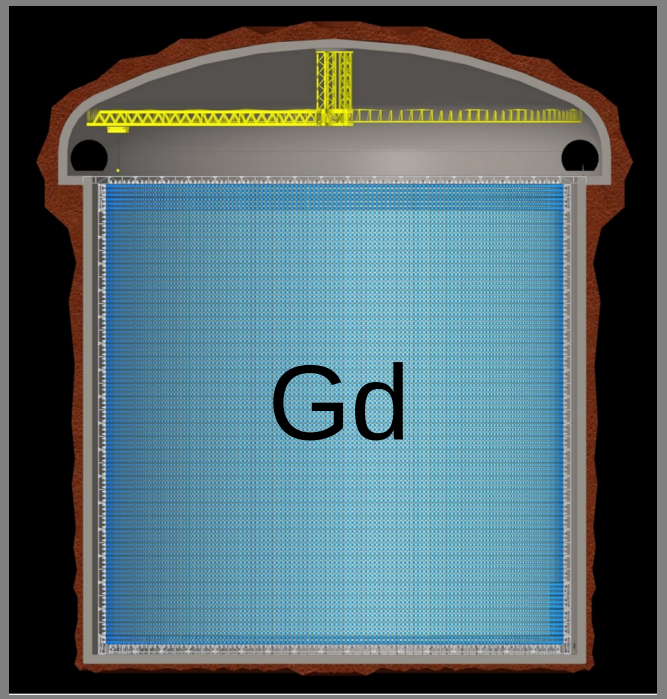
- Finalise:
  - D1.3 Initial facility parameters - DONE
  - Text for the WP5 part of ESSnuSB web page – ALMOST DONE
    - old ones here: https://essnusb.eu/wp5/ https://essnusb.eu/wp6/
- Discuss / start
  - MC software framework → talk by Georgi on Tuesday
    - detector design / optimization: lemon-D, viking, SFGD, Gd doping, Far detector, … → a lot of dicussion, talk on Lemon-D today
  - phenomenology: → a lot of discussion, 2 talks today (Monojit and Alessio)
    - near detectors: steriles, new phyiscs
    - far detectors: atmospherics, supernova, diffuse supernova, solar, reactor, geoneutrinos, ...
  - measurement of the cross-section: fundamentals, statistical approach, … → discussion on fundamentals and some statistical approach
  - analysis beyond GLoBES: MC samples, reweighting, statistics, … → comprehensive statistical model constructed
  - …and more

Far detector

Next steps:



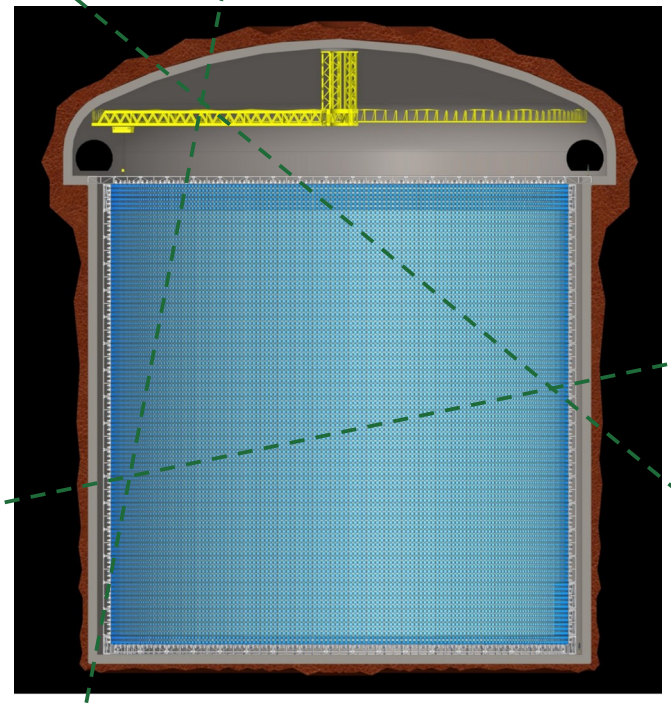
Far detector



Next steps:

- at RBI – add surrounding rock to geometry and simulate Gd doping

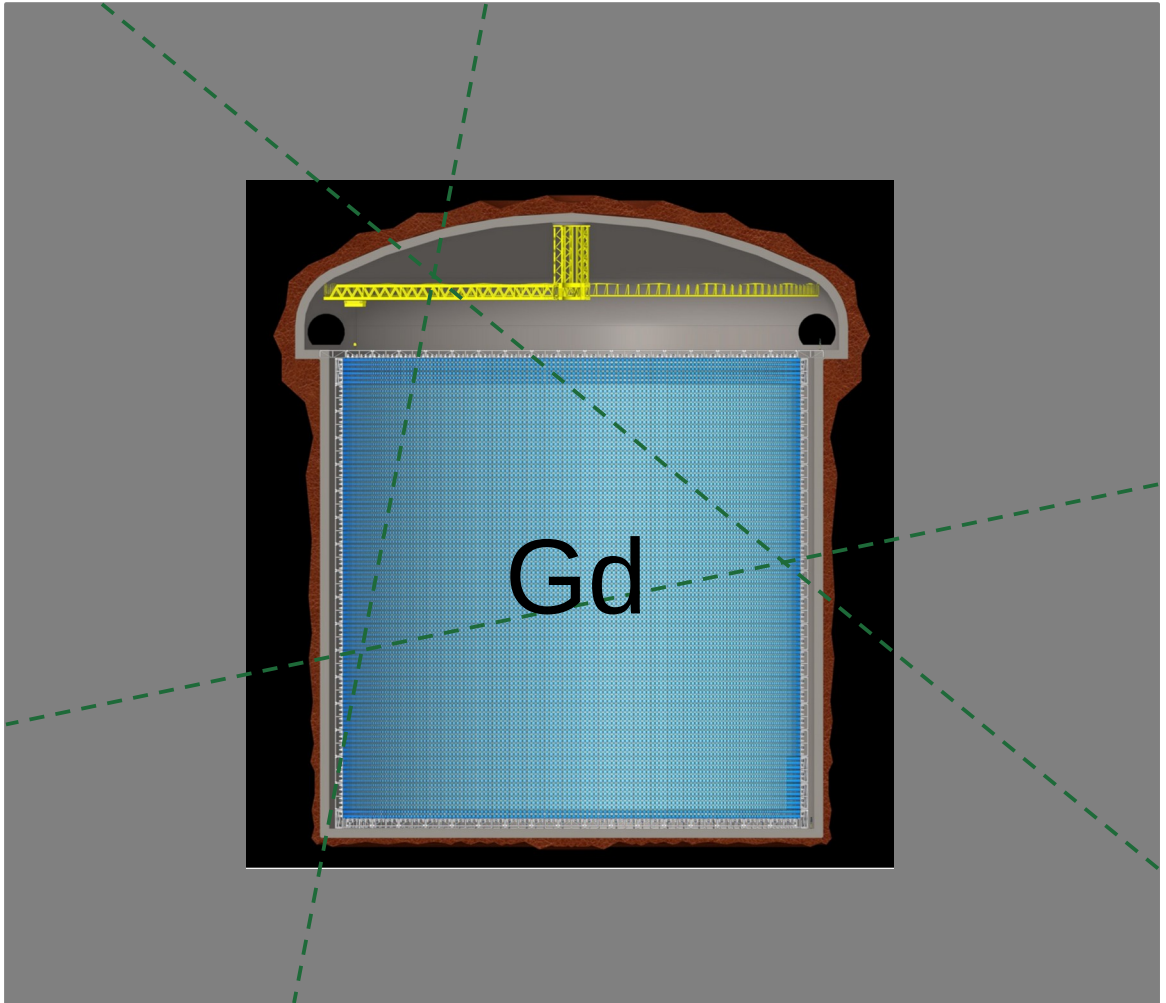
Far detector



Next steps:

- at RBI – add surrounding rock to geometry and simulate Gd doping
- at KTH – create atmospheric neutrino generator

Far detector



Next steps:

- at RBI – add surrounding rock to geometry and simulate Gd doping
- at KTH – create atmospheric neutrino generator

- Merge the two – we must **not** duplicate work

The end