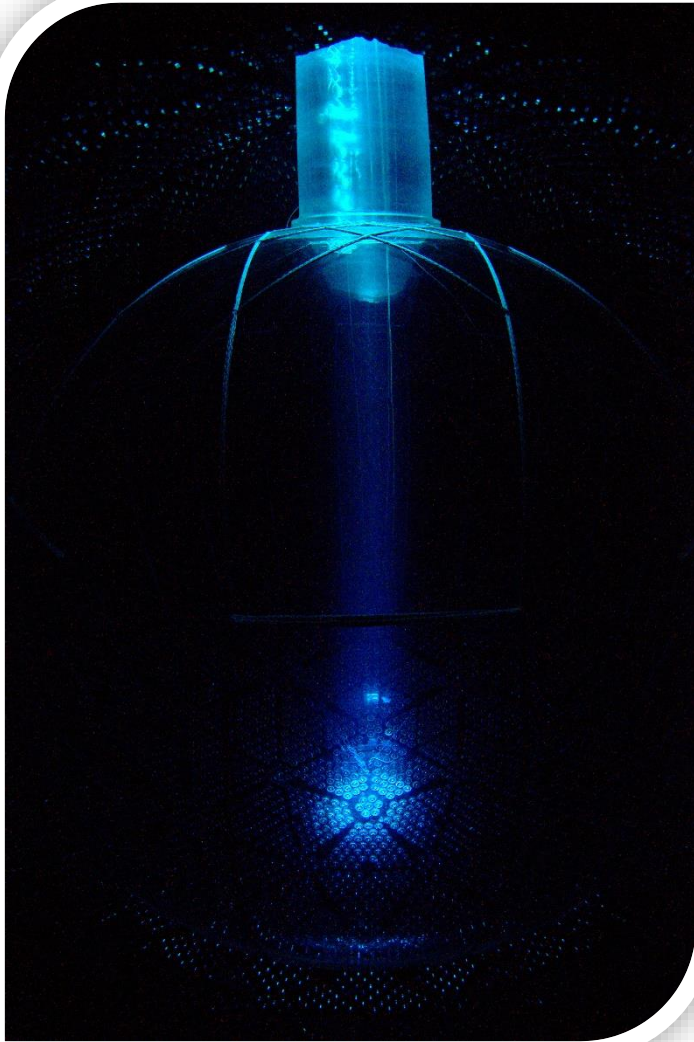
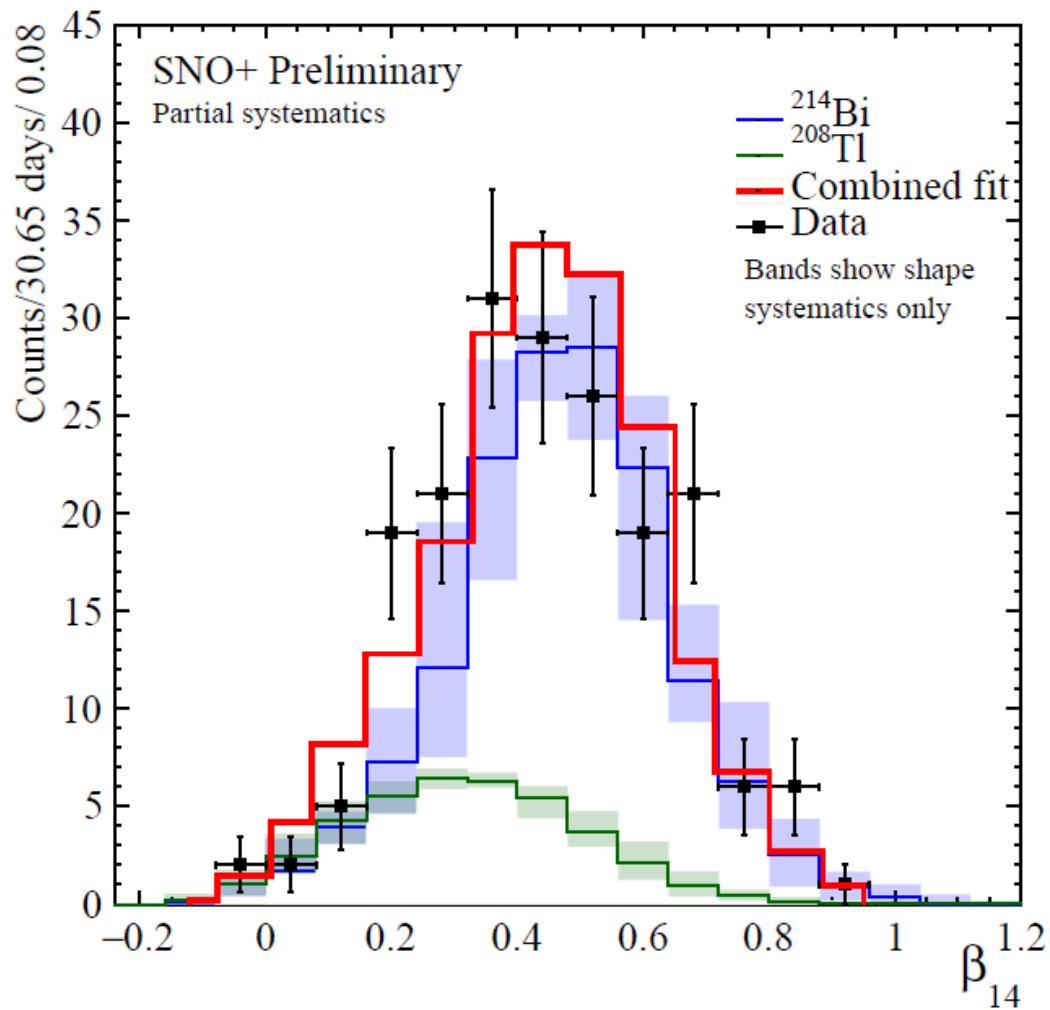


Internal Backgrounds of the Water Phase of SNO+

Ian Lam, on behalf of the SNO+ Collaboration



- SNO+ is currently in the water phase.
- Data taking since May 2017.
- Main physics goal in this phase: search for exotic nucleon decay.
- Half life $\sim 10^{29}$ years. Need to constrain backgrounds in the water.



- Internal backgrounds evaluated in the energy box below the (blinded) nucleon decay window.
- Use difference in isotropy ^{214}Bi and ^{208}Tl events to separate them.
- Express results in U/Th equivalent concentration assuming.
- This is consistent with our target levels – water is clean enough.

Results (partial systematics):

$$\text{gU/gH}_2\text{O} = (5.4 \pm 0.7_{(\text{stat})} \pm 2.9_{(\text{sys})}) \times 10^{-14}$$

$$\text{gTh/gH}_2\text{O} = < 2.8 \times 10^{-14} \text{ (95\% upper C.L.)}$$