

μ Range Stack Update

Recap

- 32 small PMTs to be tested for installation in 16 scintillator paddles.
 - Test single rate to identify correct operating voltage for each TPC
 - Test coincidence rate to evaluate efficiency of entire PMT + paddle apparatus.
- Developing best possible (affordable) mounting for the small PMTs.

PMT Testing

- Two collaboration meetings this week (SBND + μ BooNE) \Rightarrow slow progress on the single rate testing.
- Investigated issues seen last week of single rates that rise with time.
 - Looked at two PMTs (one in which this behaviour had been previously observed; one in which it had not)
 - Tested rate (with **dry** joint, no optical grease) at constant voltage after 1, 2, 4, 6 and 10 minutes running.
 - Saw no increase in rate in either PMT.
- Behaviour not reproducible \Rightarrow less “casual” test setup required.
 - Dark box, light injection (to be able to distinguish noise from signal).
 - Joel Mousseau has such a setup available at PAB (although may be a tight fit for our paddles).

PMT Mounting

- Current mounting has PMTs held to the scintillator surface by screws at the head.
 - Easy to crack PMT glass by over-tightening.
 - Could easily happen during future work
 - Has already happened!
- Tom K. has helped develop a safer setup.
 - PMTs held tight to scintillator surface by the bracket itself, tightened against the base with a foam washer for protection.
 - Duct tape to seal light leaks will also help hold PMTs firmly to the scintillator.
- Using this setup, testing on Wednesday showed no difference in the single rate for a given PMT with and without screws.

Animal Fact Friday



Komodo Dragons can reproduce via parthenogenesis – but the offspring are not clones of the mother. In fact they are always male.

The DNA in the ovum has to duplicate itself to give the offspring a full set of chromosomes. Dragons have W and Z chromosomes; “WZ” = female and “ZZ” = male. “WW” eggs are not viable so only males can be born.