PCAL fibers and scintillator

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Outline

- Big picture
- Recent work
- Near future

Scintillator

- Scintillator will be shipped to the new W&M high-bay lab
  - > This space will be available in April for receiving
  - > Will be split with the W&M shop for the
- This space has full temperature control
  - > Thermal expansion should not be an issue at all
  - > Neither will accelerated aging
  - > Gave a tour earlier this year

Fibers

- Small order for R&D
  - > Invoice on 3/5
  - > 200 5m canes of fiber (like we expect for the project)
  - > Not here yet
- Fees and such
  - > Base cost is quoted at $21.25/pc but not a full cost ($4,250 for the order)
  - > With fees, shipping, charges and the like the total was $5,300
  - > Need to understand the scaling of these fees for the full order
- Need to discuss what to order and Keith is ready to go ahead when we know what we want
- For reference
  - > For 10,000 canes $12.55/pc
  - > For 20,000 canes $10.80/pc

To glue or not glue fibers?

- MINERvA has a 3% residual on light yield fits with epoxy
  - > 1% of strip with larger changes
- The supplies for that many holes are
  - > Or $4/half layer or something like $400 total
- Our epoxy was last ordered in 6/09
  - > At that time we have small quantities pricing of:
    - 5-gallon units of "EPON RESIN 815C" at $230/5gal
    - 1-gallon units of "EPICURE 3234 (TETA)" at $68/gal
  - > It gets used in a 7.2:1 mass ratio. We get $183/lt in the proper mix or $57,800 for 313 lt

Labor

- We were easily gluing 128 fibers for MINERvA with two people in less than half a day
  - > Including setup and clean up
  - > Did a demonstration at W&M last month of 128 1.07m fibers in a bit more than 2 hours end to end
- MRI has roughly 10 months of tech labor
- Looks to me like we can glue and probably cut within this budget
  (esp with some summer undergrad help)

Cutting

- Table being made to a design from Jose
- Jose and I are not on the same page
  - > I think a much less sophisticated device would be find for our uses

- One of my primary issues is that end to end swaps are painful (I would rather move the saw)
- We need to meet at start or end of day regularly to converge

Testing at W&M

- Samples (3 strips at W&M)
  - > Single fibers
  - > Double fibers
  - > Glue single fibers
- First try two weeks ago before break the fiber broke (but not
  - > Starting again this week
  - > Anna and undergrad (Matt) working on this
- Also a long (16ft) source test box to make this more automated being assembled
  - > Assume we will be doing this more than once
  - > Manual mechanical movement inside the box with a counter for location
  - > Would like to make this a real testing apparatus with computer control