

Mechanical Structures for EPIC pfRICH

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Budget components @Purdue

- Simulations needed anyways to determine manufacturing design and maintain tolerances
 - Part of labor budget
- ¼ structure prototype: ~55k\$
 - 30k\$ labor & 25k\$ M&S
 - Engineering mostly and might not be able to figure it all out
- Full structure: 200 – 220k\$
 - M&S scales likely = 120k\$
 - Higher / better materials but may use same tooling/forms/etc.
 - Cost-savings for labor not directly scaling, maybe 80 – 100 k\$
 - More technician, not engineering
- But these numbers assumed 5-10 micron finishing for mirror substrates, not sufficient
 - Request 8-10k\$ now to prototype in Fall and see if Purdue can do it
 - ¼ Prototype: tricky to estimate
 - Full structure: 4x prototype

Line items currently at Purdue:

1. a 60 degree outer mirror sector (suffices for a test)
 1. 1/4 of the inner mirror
2. 1/4 of the rear sensor mounting plate with 17 square openings
3. 1/4 of the front plate with a bunch of aerogel pockets
4. the end-ring structures / beams