

The Existing HyCal Calorimeter

The inner part:

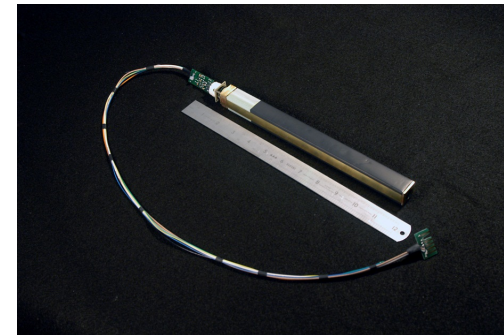
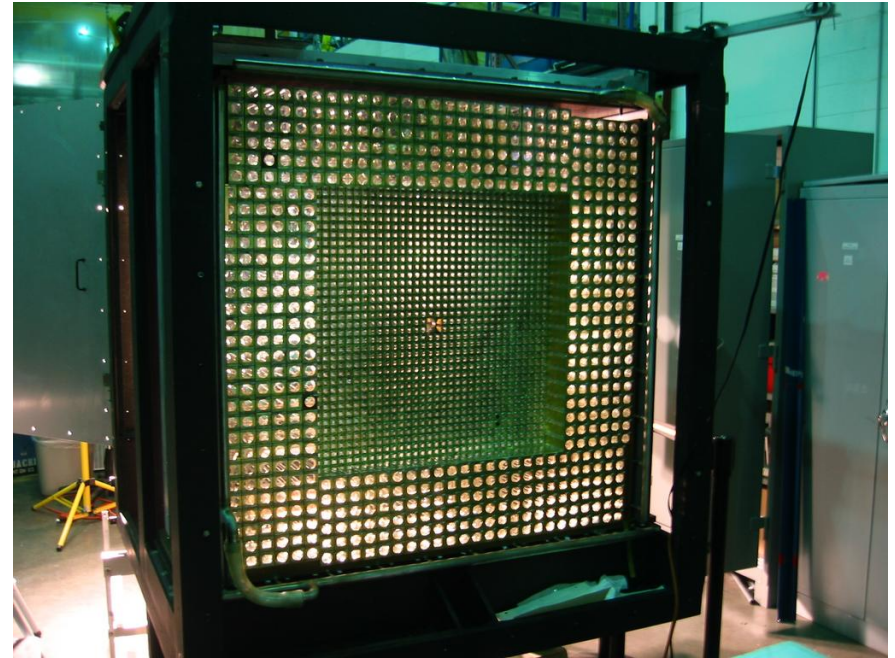
- a) $34 \times 34 = 1156$ PbWO_4 crystal modules
- b) Size: $68 \times 68 \text{ cm}^2$ area

The outer part:

- a) 4 blocks of $(6 \times 24 = 144)$ Pb-glass modules
- b) Total of $4 \times 144 = 576$ pb-glass modules

The Frame inner size:

- a) about $116 \times 116 \text{ cm}^2$



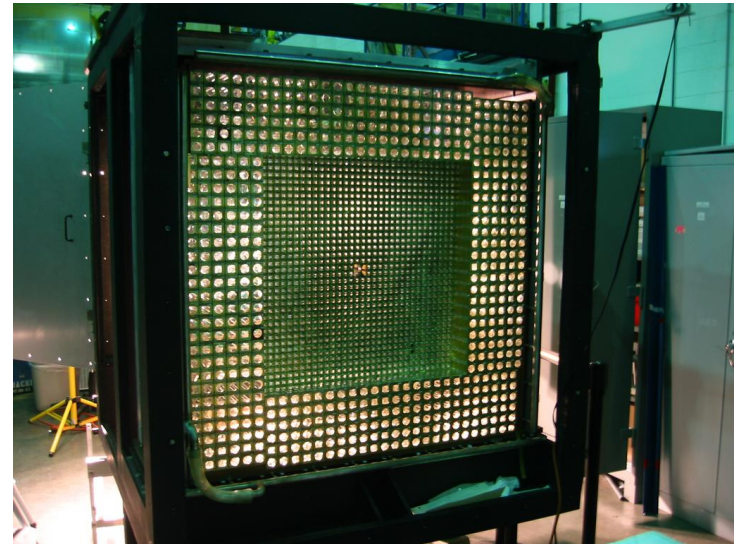
HyCal Upgrade (full PbWO_4 crystals)

Existing inner part:

- a) $34 \times 34 = 1156$ PbWO_4 crystal modules
- b) Size: $68 \times 68 \text{ cm}^2$ area

New PbWO_4 modules needed:

- a) $\sim 576 \times 4 = 2,304$ PbWO_4 modules
- b) Total estimated cost: **\$3.4 M**



Item	quantity	Cost/unit (\$)	Cost for item (\$)
PbWO_4 crystals	2310	\$1000.	2,310,000
PMT (R1425)	2310	\$300.	693,000
HVD	2310	\$100.	231,000
Assembly materials	2310	\$50.	115,500
TOTAL			3,349,500

HyCal Upgrade (Partial addition of PbWO_4 crystals)

Existing inner part:

- a) $34 \times 34 = 1156$ PbWO_4 crystal modules
- b) Size: $68 \times 68 \text{ cm}^2$ area

Upper and Bottom Sections Only:

$2 \times (34 \times 12 = 408) = 816$ PbWO_4 modules

- a) Total estimated cost: **\$1.2 M**

Item	quantity	Cost/unit (\$)	Cost for item (\$)
PbWO_4 crystals	820	\$1000.	820,000
PMT (R1425)	820	\$300.	246,000
HVD	820	\$100.	82,000
Assembly materials	820	\$50.	41,000
TOTAL			1,189,000

