PSD: Bars vs Tiles

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To be considered

- Total weight
- Number of channels and total power
- Light attenuation
- Hermeticity
- Mechanics
- Event reconstruction / backsplash, ...



A (precise) calculation brings to: Tiles: 7380 SiPM = 2460 ch > 3000*225mW / 32 ~ 19 W Bars: 2832 SiPM = 944 ch > 625*225mW / 32 ~ 6.7 W



The rest of power consuption to be added. Power might be an issue. Maximum allowed for PSD is 40 W.





Light attenuation

Tiles: not an issue Bars: to be checked. Measurements ongoing

Using the PSD alone:

Much better particle localization along the bar \rightarrow better correction for light attenuation









Hermeticity



SiPM readout

Much better for the bars even assuming trapezoidal cuts also for the tiles

Tiles: Cable routing on two sides only

Tiles: (Much less) Cable routing and on all 4



Mechanics: Bars







Mechanics: Tiles





Event reconstruction et similia

From Peng's work: Better performance with tiles above 100 GeV. To be folded with photon fluxes (very low above 100 GeV). To be testet with the use of the new HERD setup.

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TILES ?

BARS

BARS

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