Radiator inner walls effects on ring acceptance

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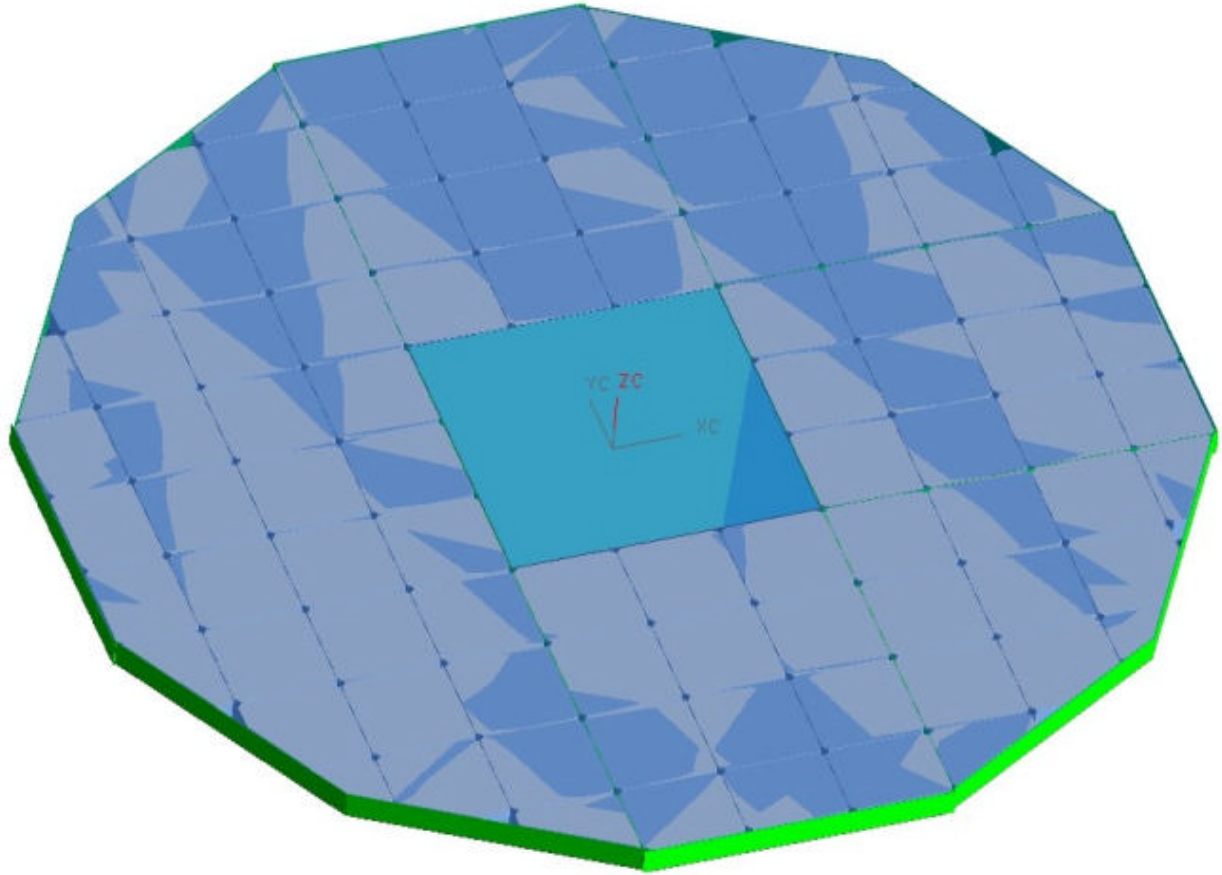
Radiator Tile Configuration

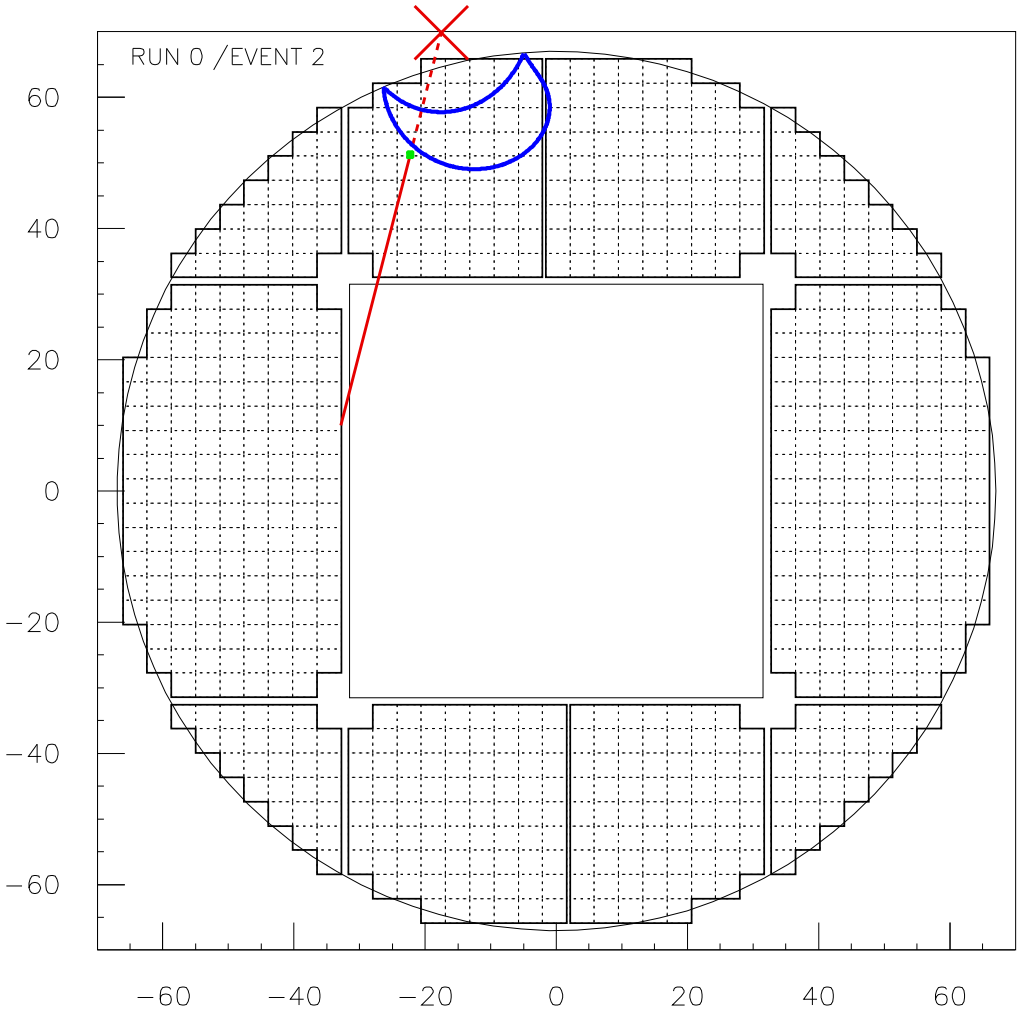
- The existence of opaque walls among the aerogel radiator tiles will decrease the cerenkov ring acceptance
- Ring acceptance calculation takes into account :
  - ◇ radiator outer and inner walls
  - ◇ total reflection
  - ◇ matrix non-active area

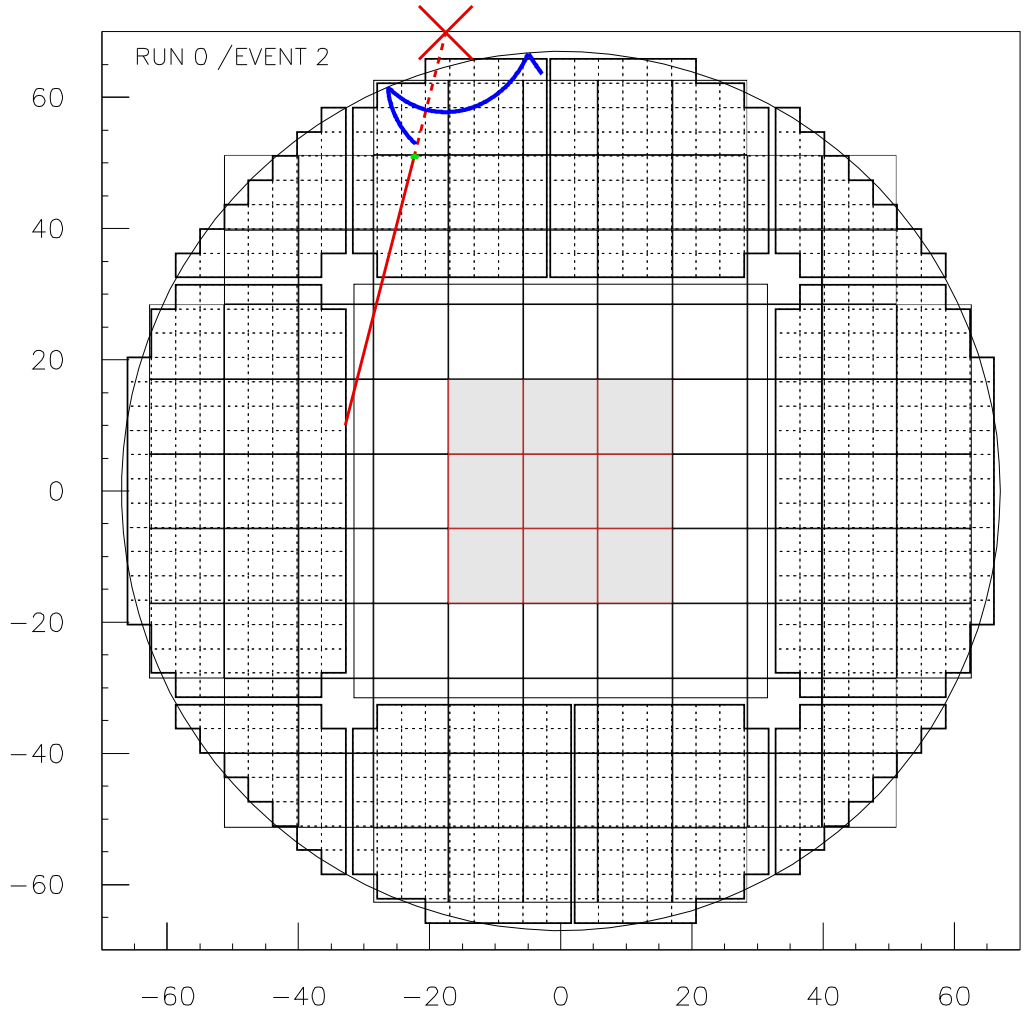


Matsushita aerogel :

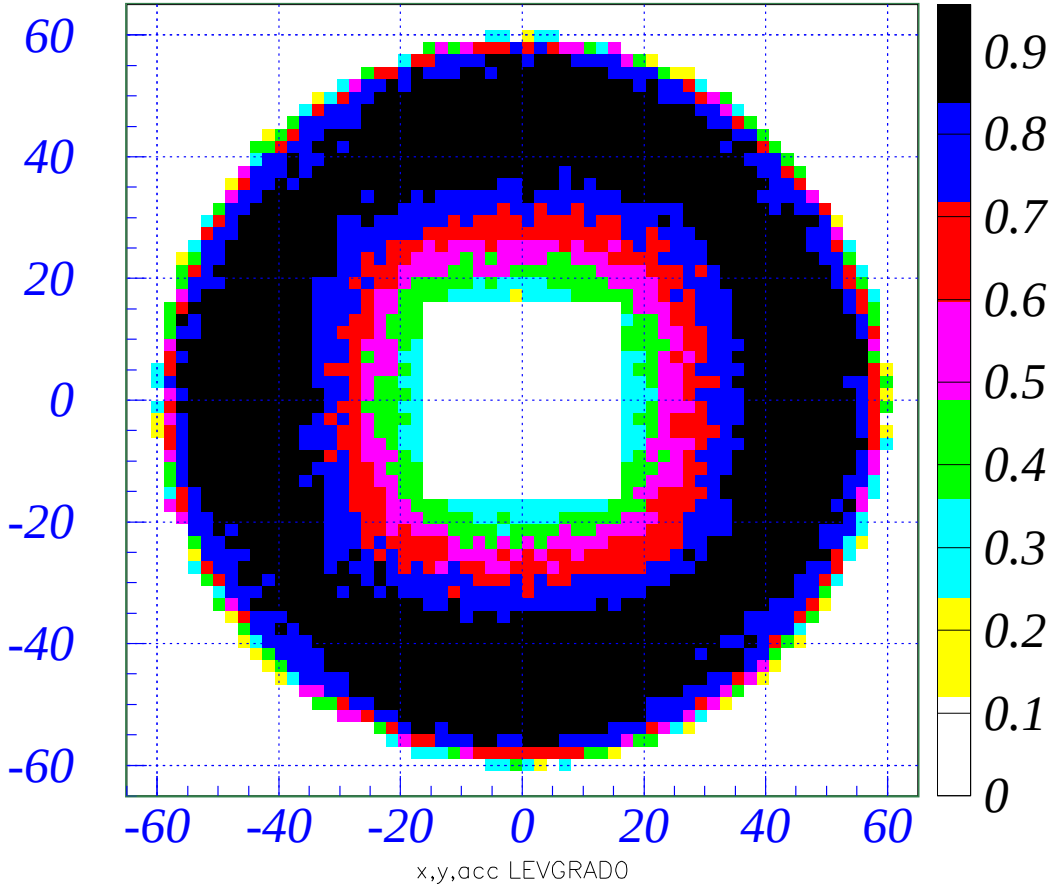
- Tile Radiator Pitch = 11.4 cm
- Refractive index = 1.03

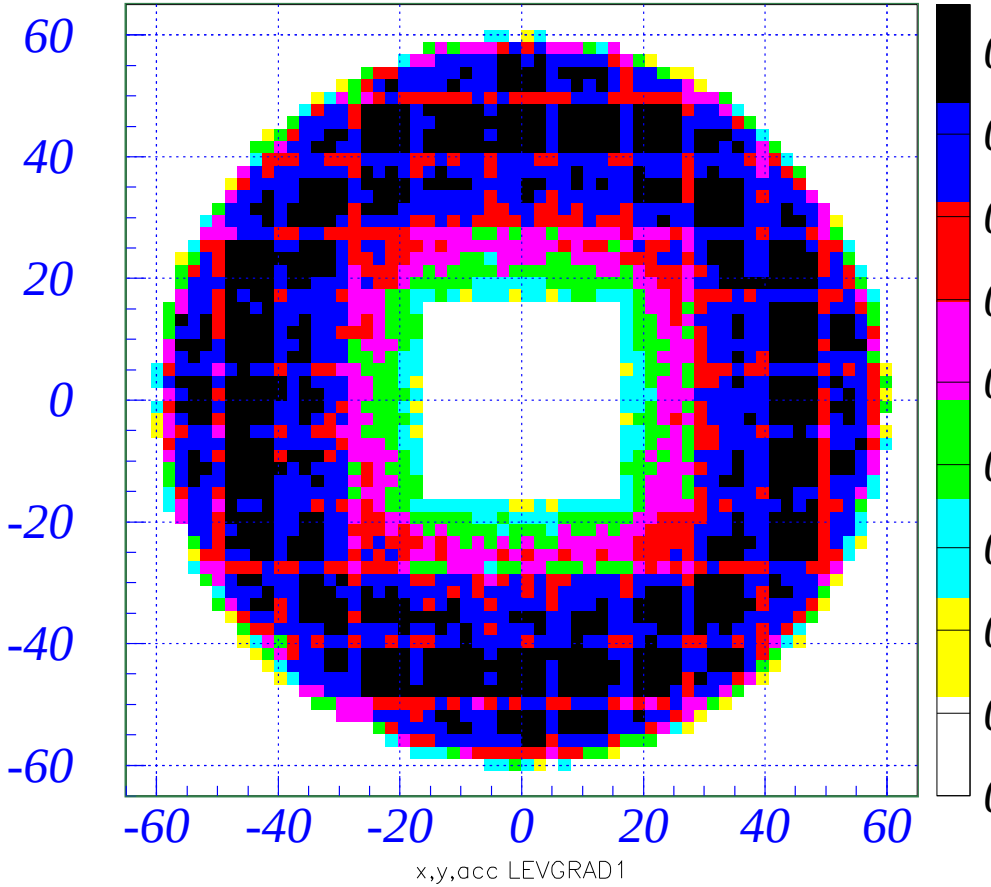
Event Display





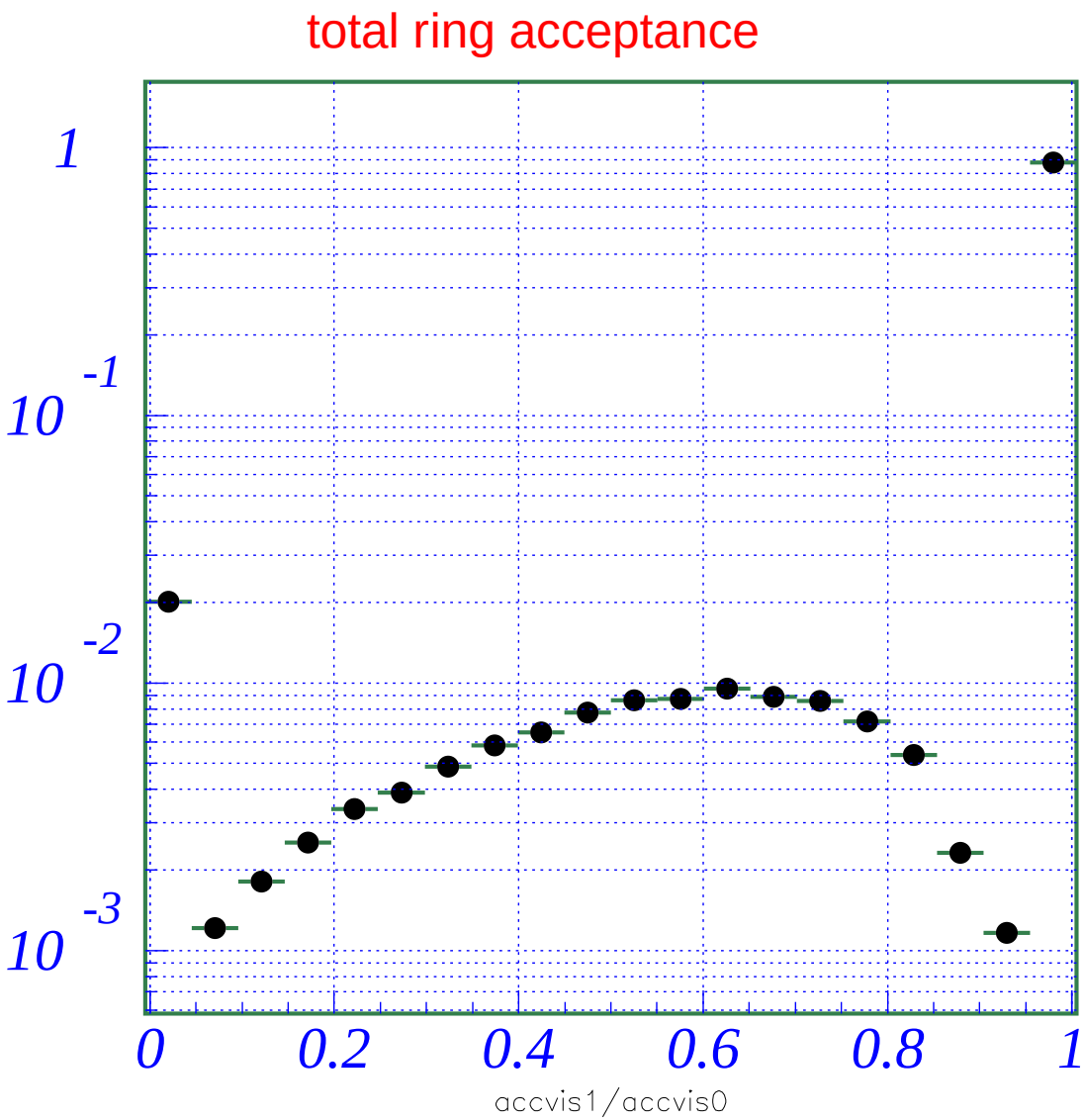
Ring acceptance





(no inner walls)

Ring acceptance reduction



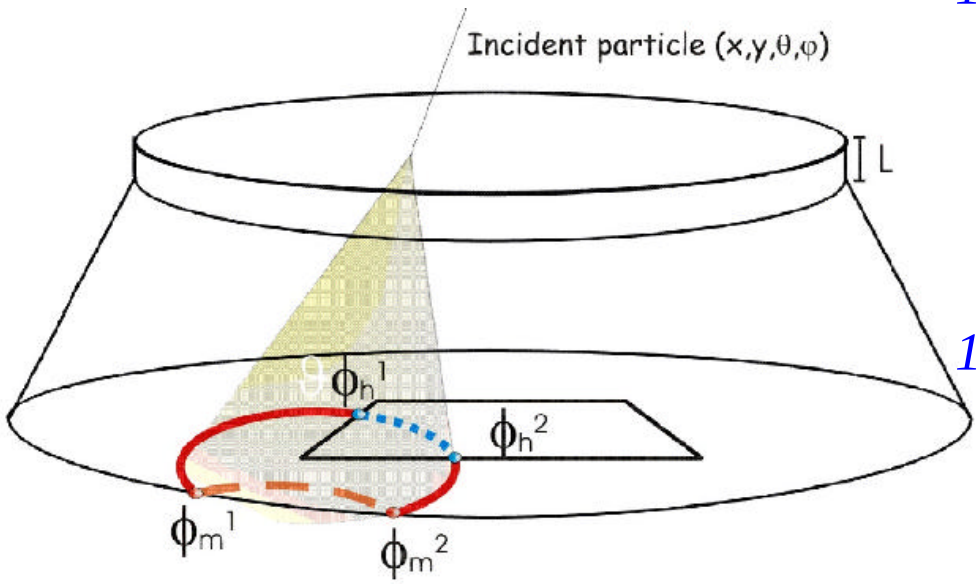
events with reduced acceptance
11%

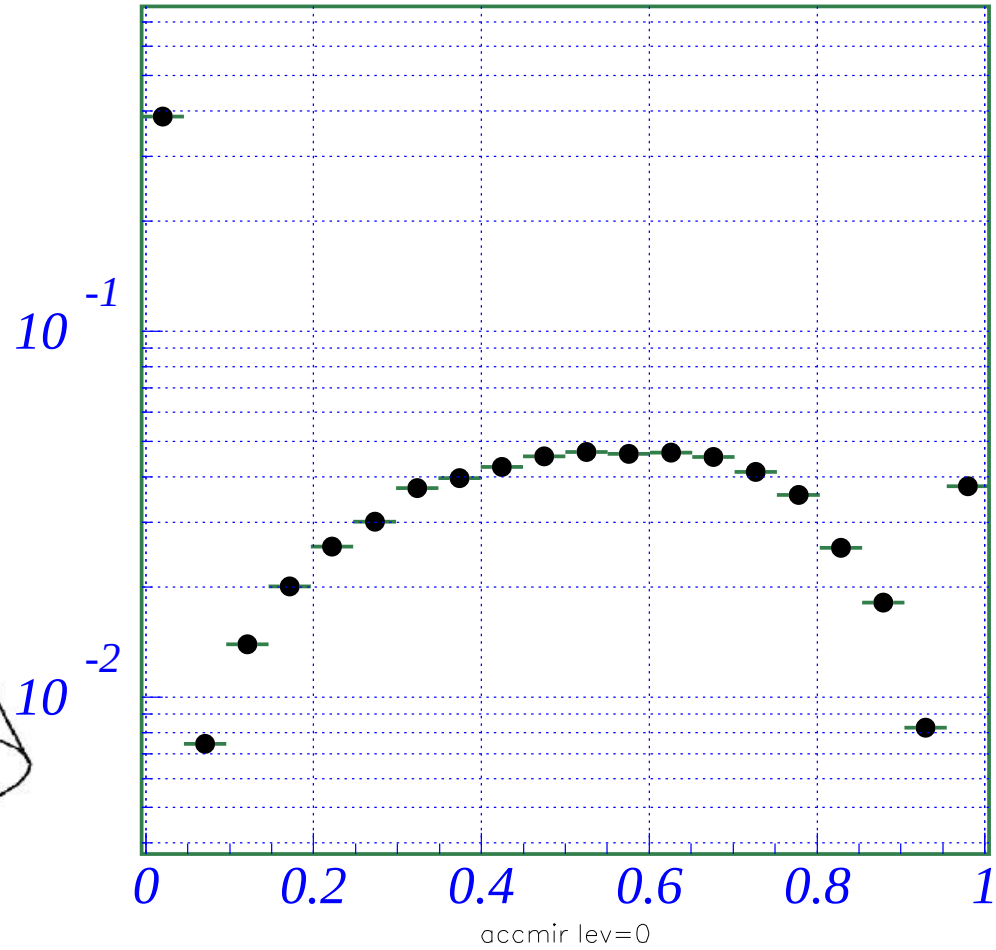
events with null acceptance
2%

average acceptance reduction
$\sim$ 8%

Aerogel mirror acceptance

The relevance of the mirror presence for aerogel events comes out from the analysis of the mirror acceptance

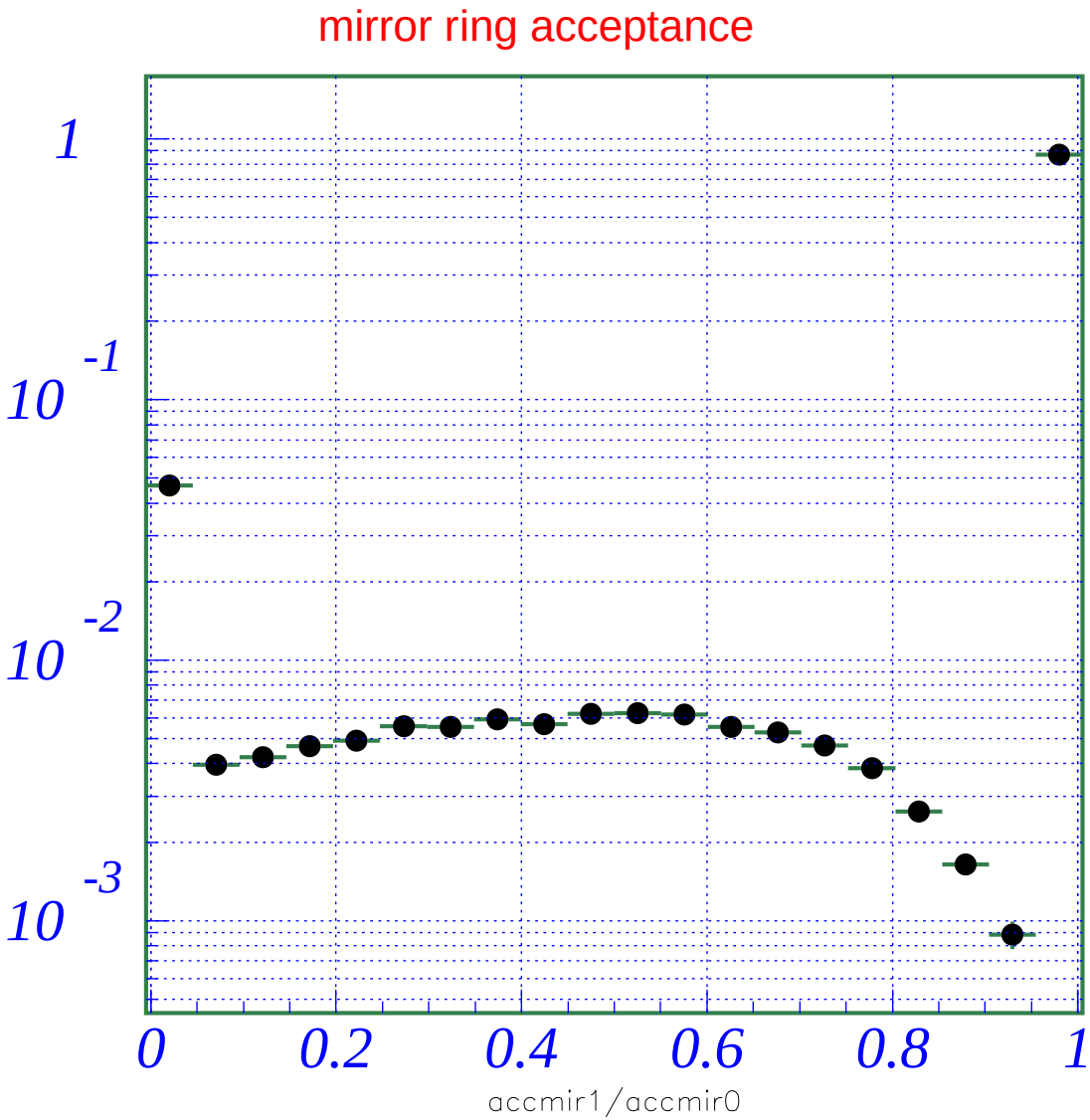




60% of events have reflected photons

4% of events have full reflected patterns

Ring acceptance reduction (MIRROR)



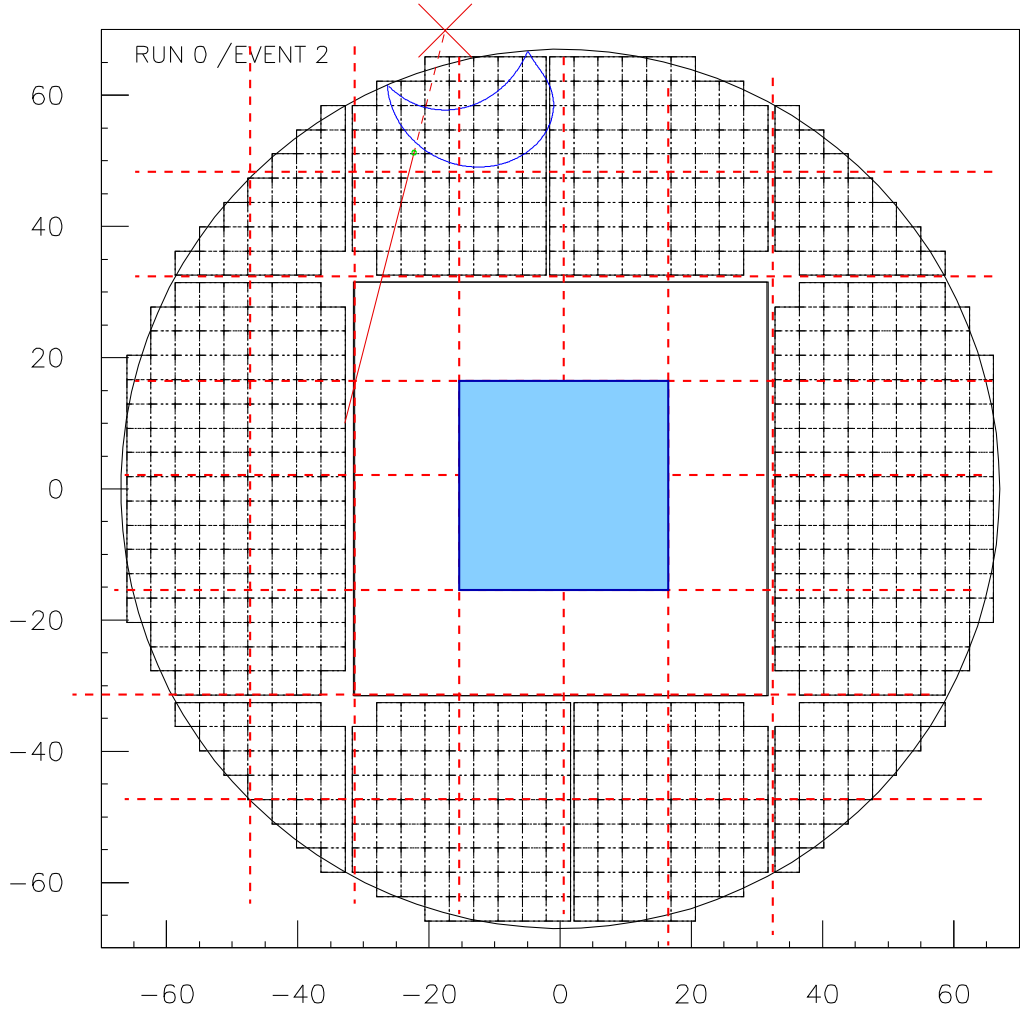
events with reduced acceptance
13%

events with null acceptance
5%

average acceptance reduction
$\sim$ 11%

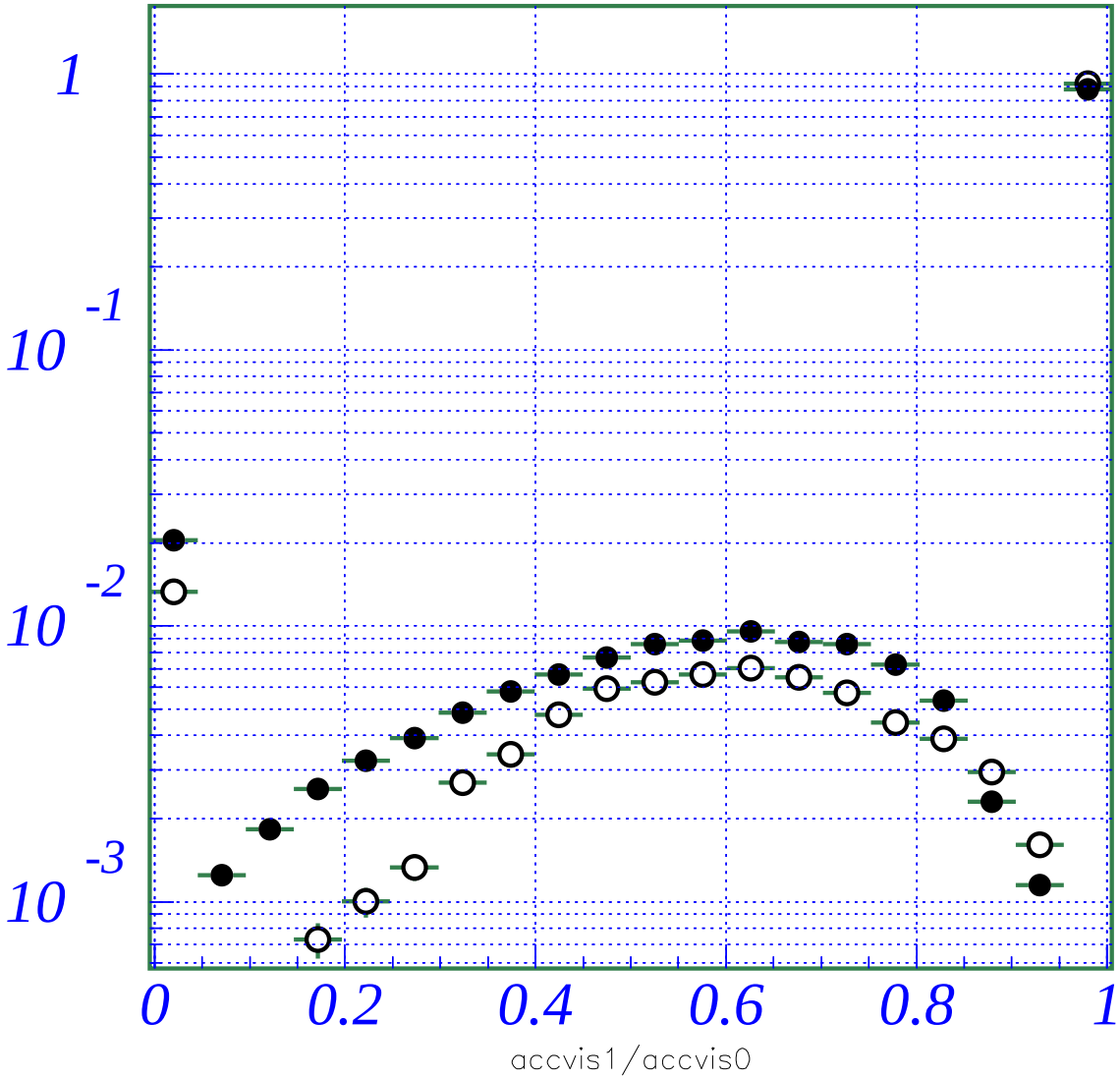
A larger Radiator Tile Configuration

- What happens if we enlarge the aerogel radiator tile to NaF width/2
  $\sim$ 17 cm



Ring acceptance reduction

Comparing the acceptace reduction for the two radiator pitches



events with reduced acceptance
11% → 8%

events with null acceptance
2% → 1.3%

average acceptance reduction
∼ 8% → 6%