

A multiPMT for SWGO water Cherenkov detectors

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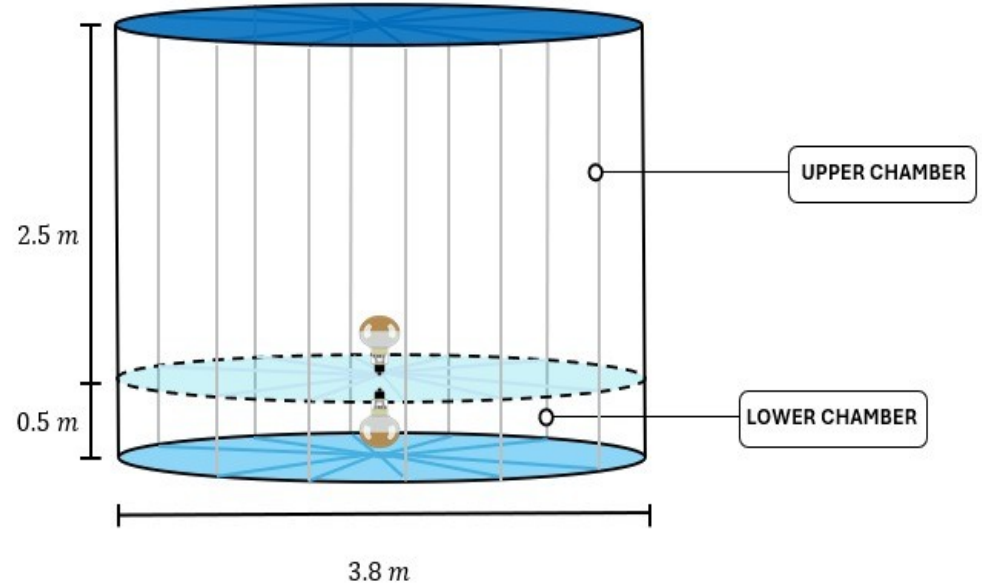
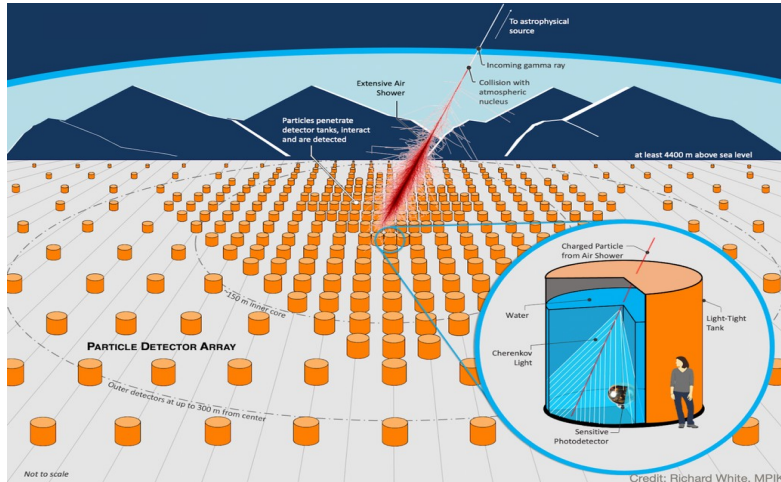


SWGO Experiment: Enhancing Water Cherenkov Detectors

SWGO

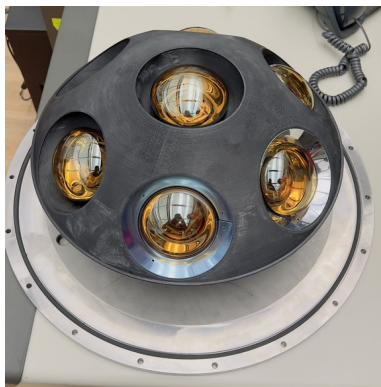
Proposed ground-based gamma-ray observatory in South America (10-30° S latitude, 4.4 km altitude).

- Features high fill-factor core detector
- Enhanced sensitivity
- Low-density outer array.



Why multiPMT....

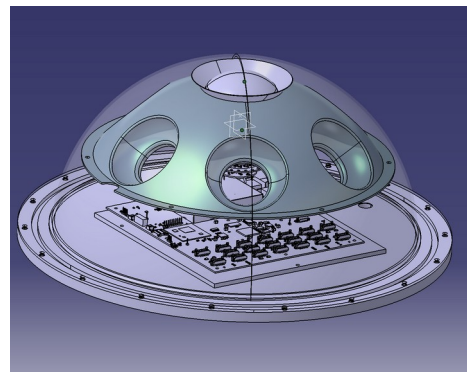
An alternative to Large Area PMT



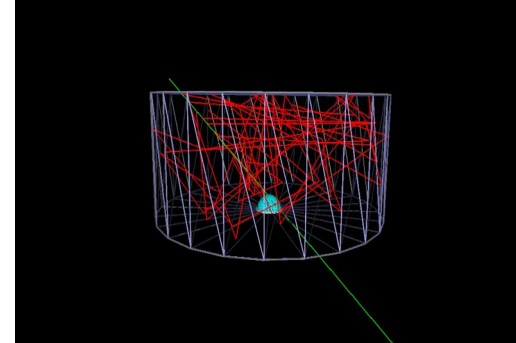
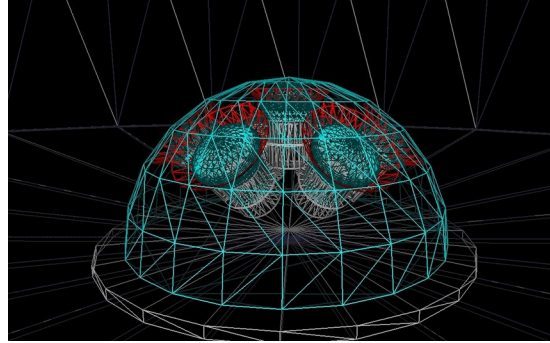
multiPMT advantages:

- Cost effective
- Flexible detector design
- Intrinsic directional sensitivity
- Modularity to prevent failure
- Fully Integrated in SWGO Tanks
- Better timing
- Extended dynamics
- Integrated electronics

The complete design



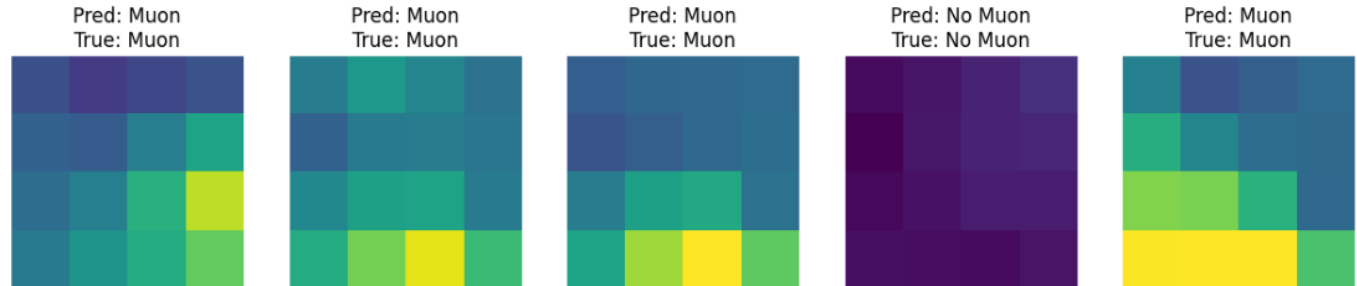
Geant4 Simulations: multiPMT performance



Full study of detector performance and efficiency including all materials and optical properties

A preliminary attempt to assess Muon Tagging Capabilities

Cosmic shower particles (from CORSIKA) injected in one tank



Output of a CNN algorithm for muon identification