



Light concentrators for large-volume detector at the Baksan Neutrino Observatory

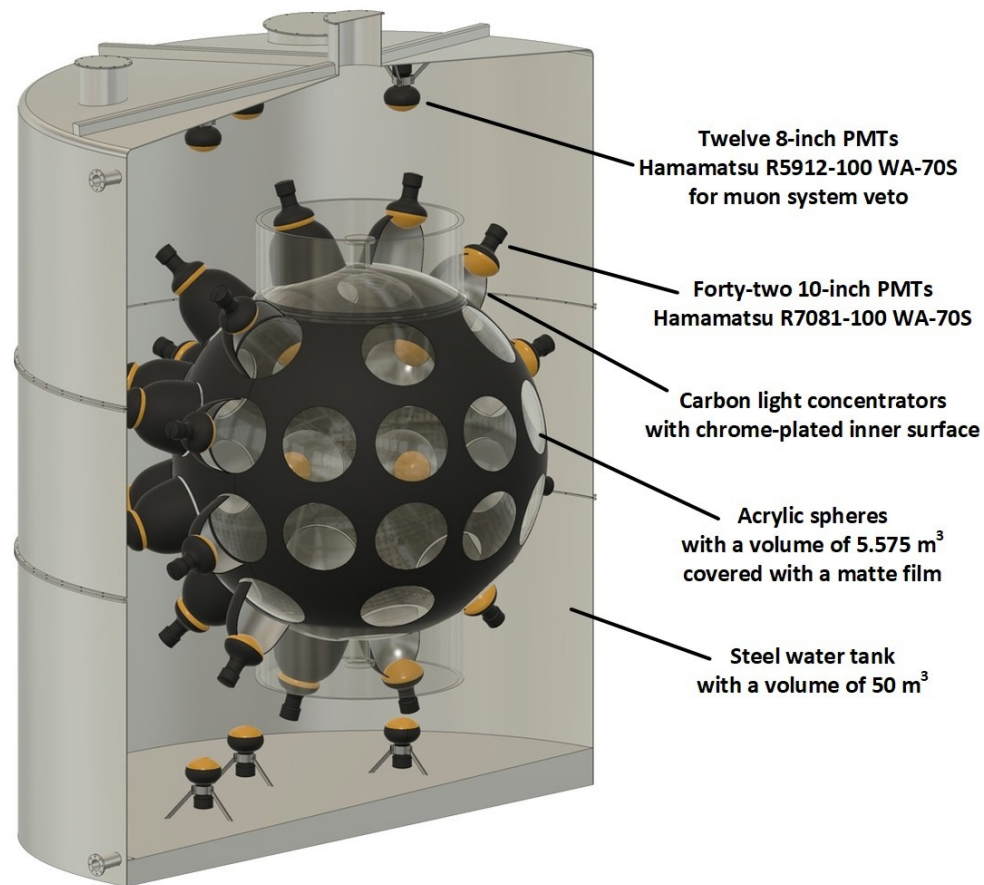
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A new large-volume Baksan neutrino telescope (10 kt liquid scintillator) will be created at the Baksan Neutrino Observatory at a depth of about 4700 mwe

The highest possible light yield is crucial for detector development

Mounting light concentrators to PMTs is one of the ways to increase light collection efficiency

0.5t prototype is completed, 5t prototype is under development

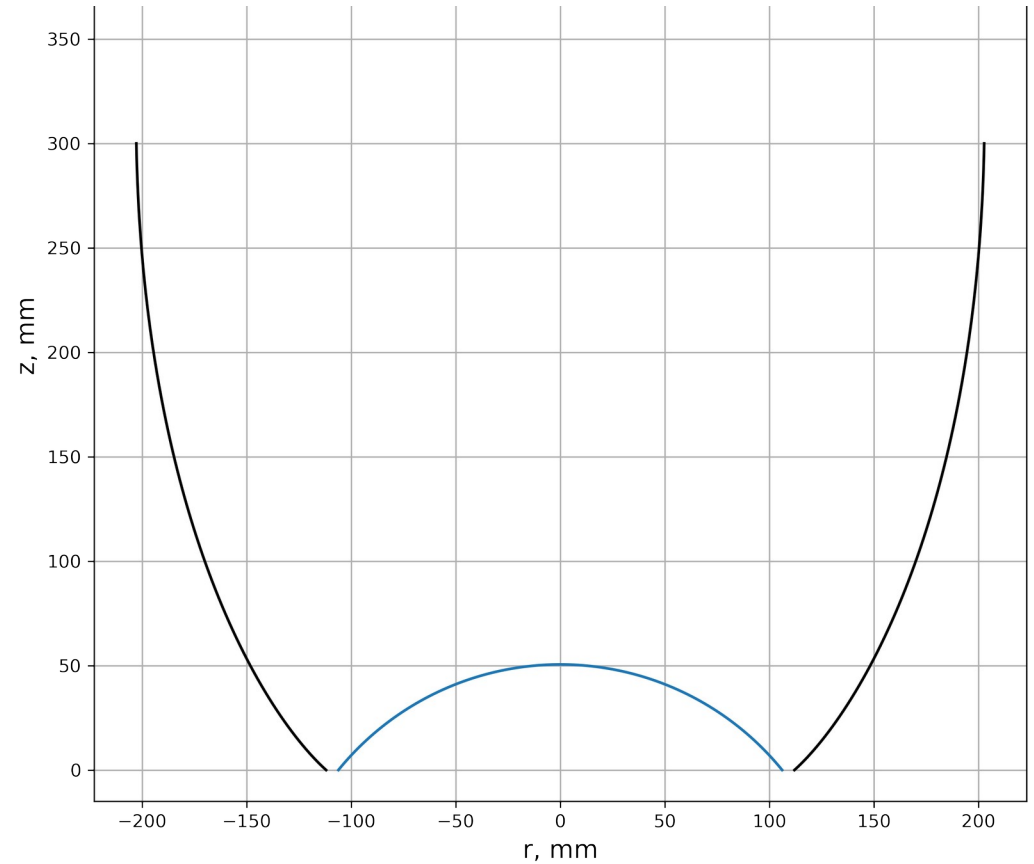


5t prototype design

The concentrator was designed using the String method (also known as Winston cone method) which considers the shape of the photocathode

The concentrator increases light yield nearly 3 times.

The concentrator prototype is under development

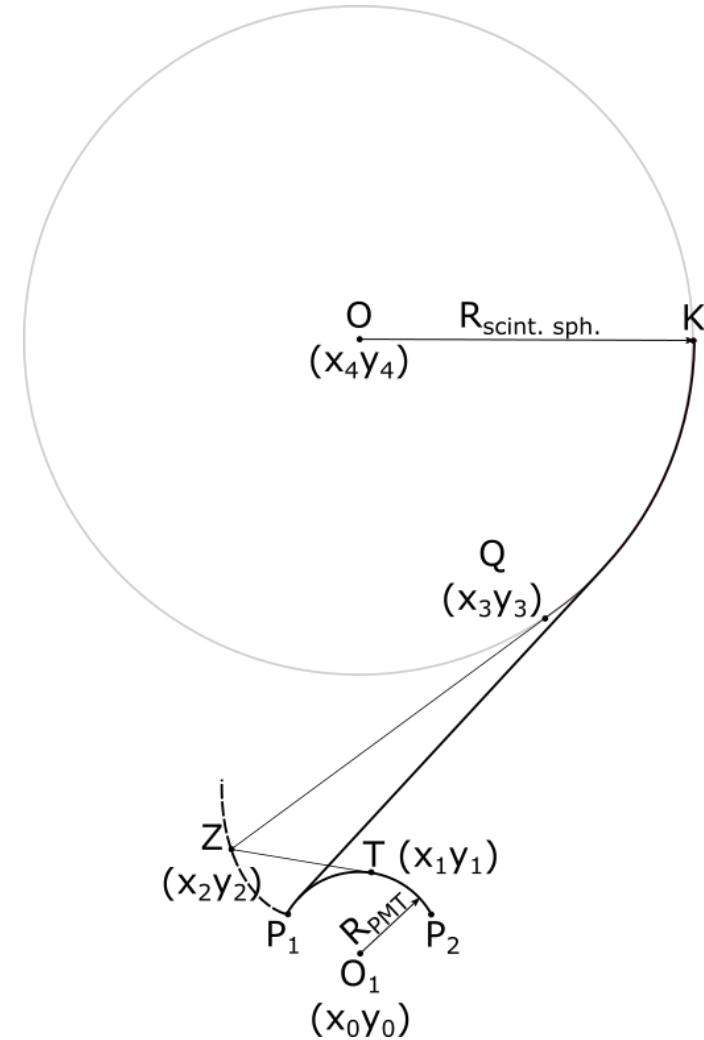


Calculated cone profile

Thank you for your attention

The concentrator was designed using the String method (also known as Winston cone method) which considers the shape of the photocathode

Implementation of the string method was done by using python3 programming language with NumPy library.



The String method principle illustration