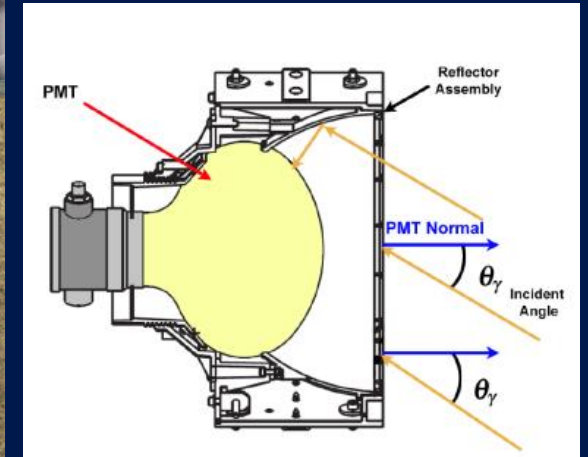
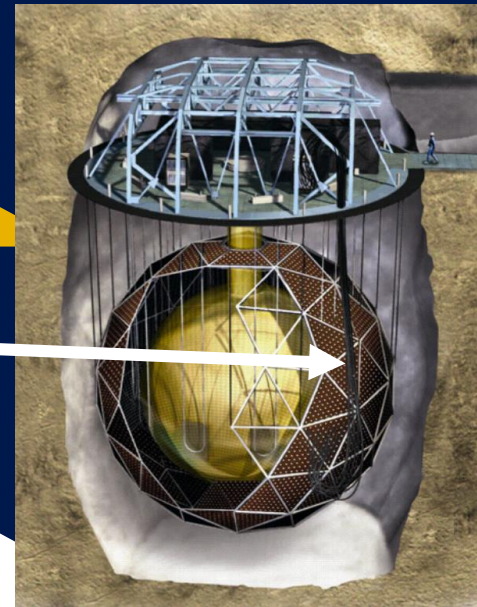


Efficient Modelling of optical photon propagation in SNO+

Samuel Magalhães

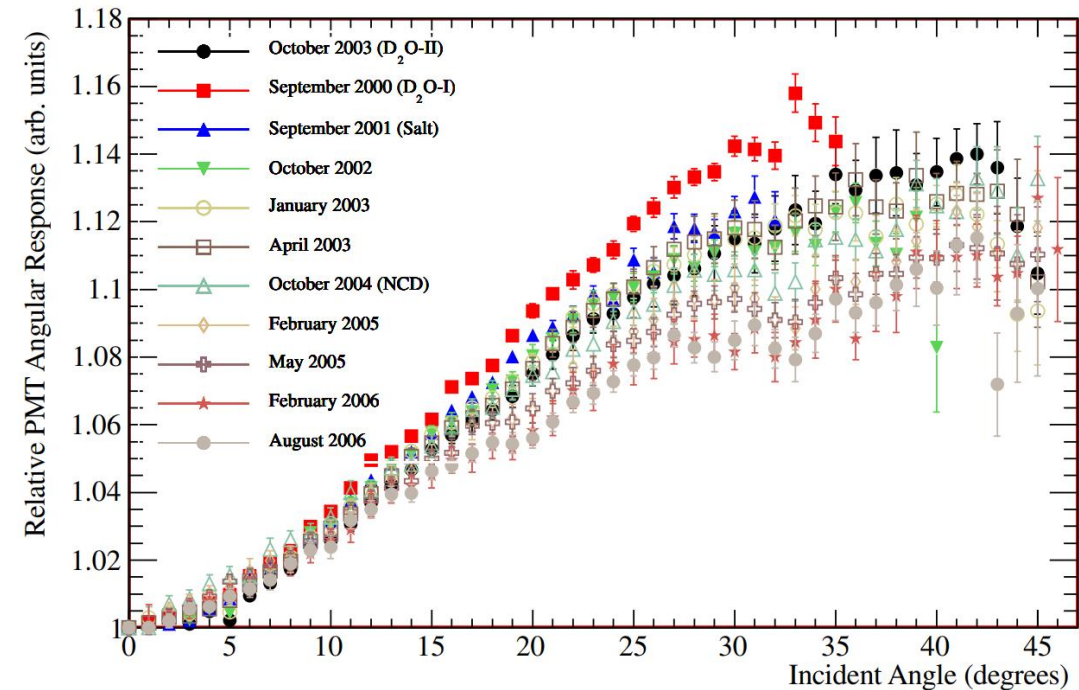
General Ideas

PMT

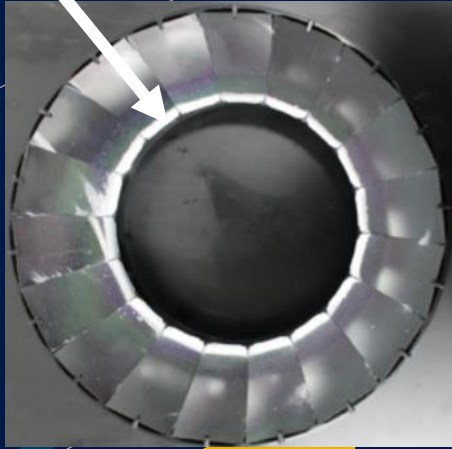


- The PMT angular response is the efficiency in collecting light.
- The angular response curve is a result of the geometry of the concentrator (Winston cone).

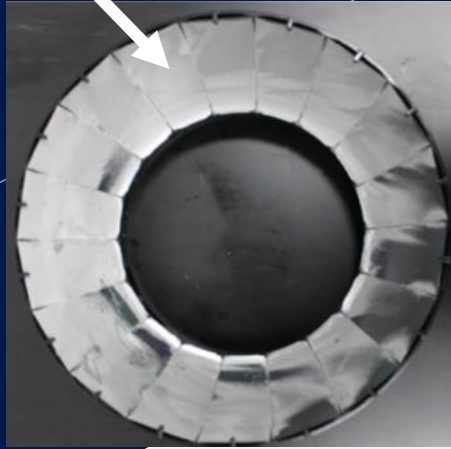
Relative PMT Angular Response at 420 nm vs Incident Angle



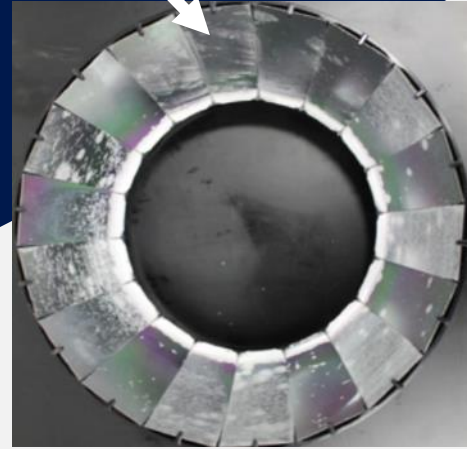
Aged ring



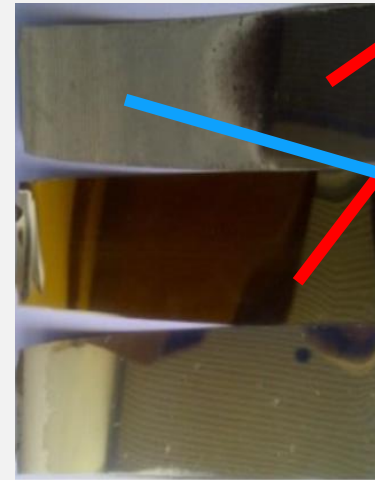
Aged petal



Partially aged



- Some concentrators are degraded
- “White spots” are a consequence of degradation

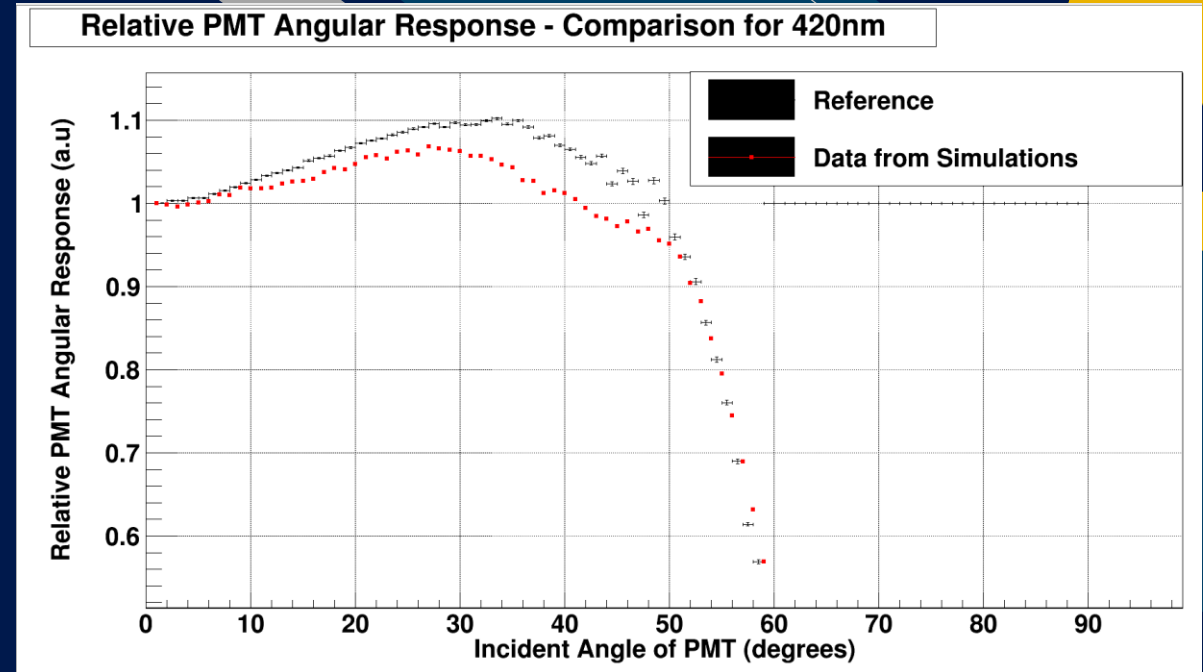


Specular Reflection

Diffuse Reflection

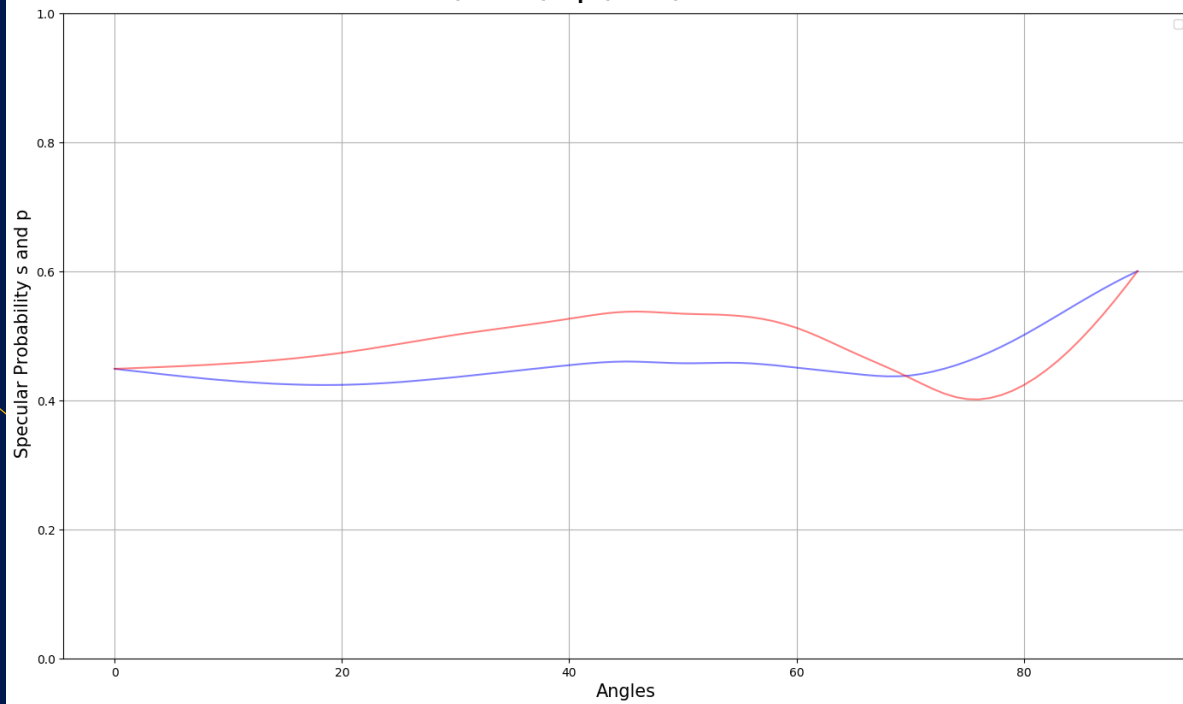
Objective, Method, Results

- Find a model of diffuse reflection that works with our data
- Match our curve with our reference (Ana Sofia)

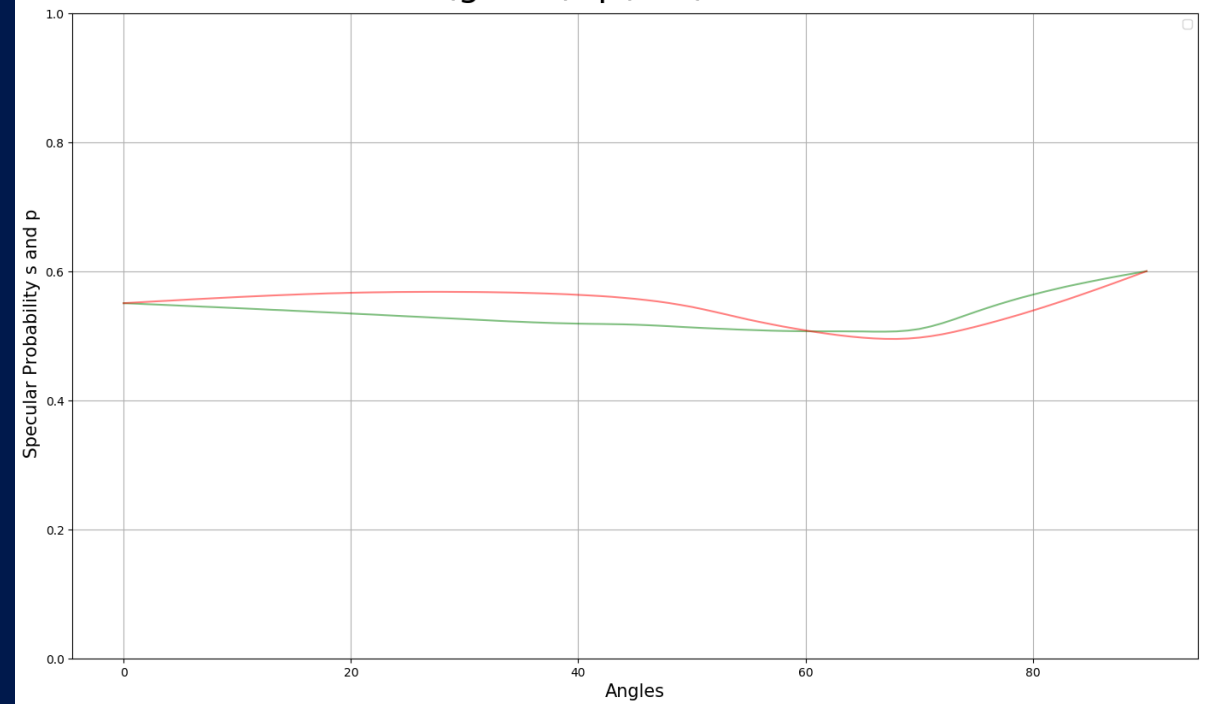


- Run simulations and compare with pre-existent results
- >>Being able to vary the parameters of diffuse reflection

Specular Probability vs Angle
s(blue), p(red)- 337nm



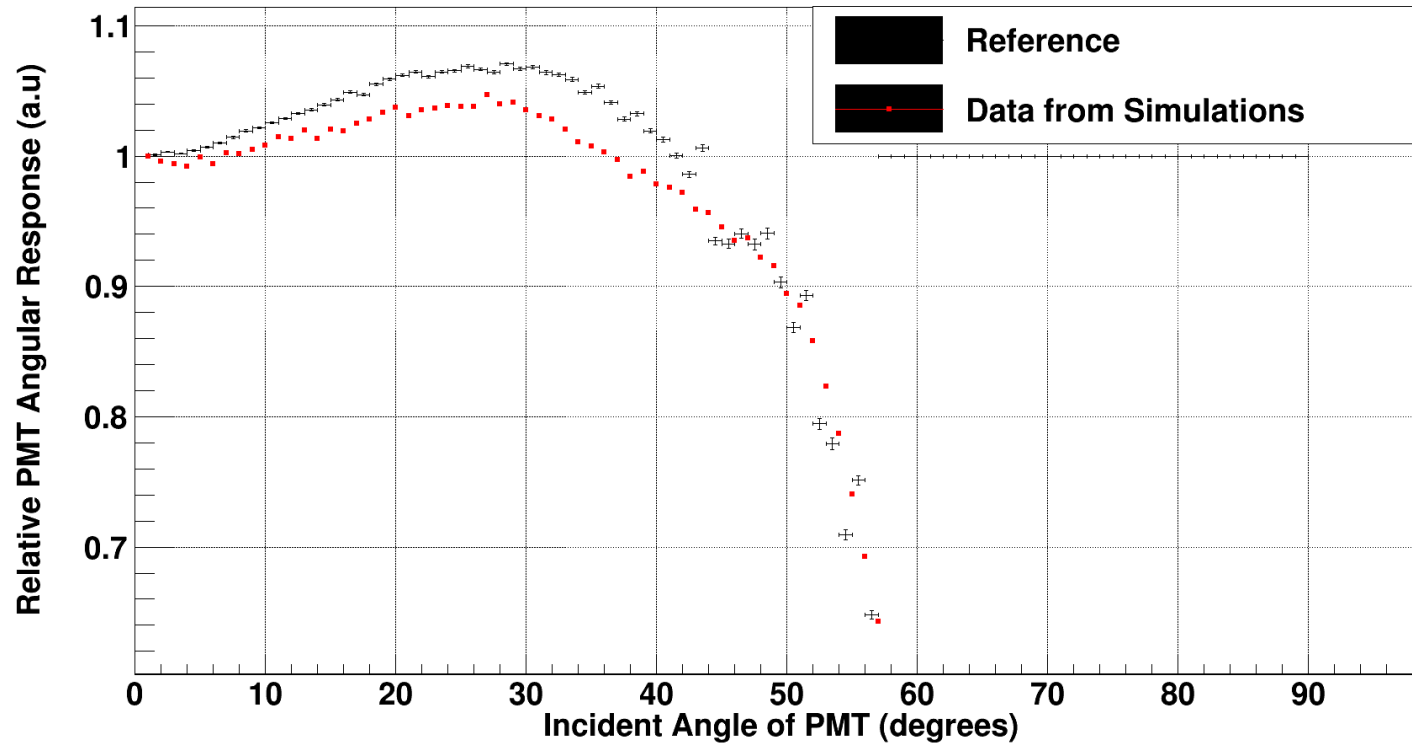
Specular Probability vs Angle
s(green), p(red)- 505nm



100 million events for each wavelength



Relative PMT Angular Response - Comparison for 337nm



Relative PMT Angular Response - Comparison for 505nm

