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High-Efficiency WLS Plastic for a Compact Cherenkov Detector

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The PHeSCAMI project (Pressurized Helium Scintillating Calorimeter for AntiMatter Identification) aims to identify anti-deuterium in cosmic rays by exploiting the existence of delayed annihilations (~μs) expected in a pressurized helium target. The technique relies on measuring the helium scintillation signal (80 nm), which requires a two-stage WLS (Wavelength Shifter) conversion. This contribution presents test measurements of the second-stage WLS, based on the FB118 material produced by “”Glass to Power””.

The absence of residual scintillation and the high efficiency of UV photon conversion in FB118 suggest its potential application as a compact Cherenkov detector in CubeSats, enabling particle velocity measurements in the range of 0.75c to 0.95c.

Authors: GHEZZER, Luigi Ernesto (Universita’ di Trento); Dr GHEZZER, Luigi Ernesto (Trento University & INFN-TIFPA)

Co-authors: NOZZOLI, Francesco (Istituto Nazionale di Fisica Nucleare); Dr ZUCCON, Paolo (TIFPA)

Presenter: Dr GHEZZER, Luigi Ernesto (Trento University & INFN-TIFPA)

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