ILD Muon System R&D

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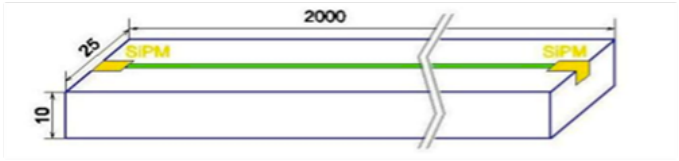
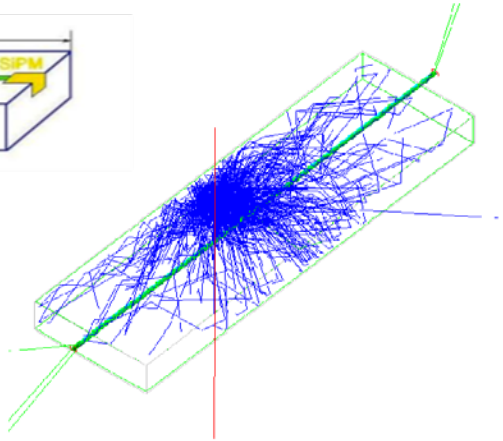
Main Options is Scintillator Strip with Wavelength Shifter Fiber and SiPM Readout (Sc/WLS/SiPM)

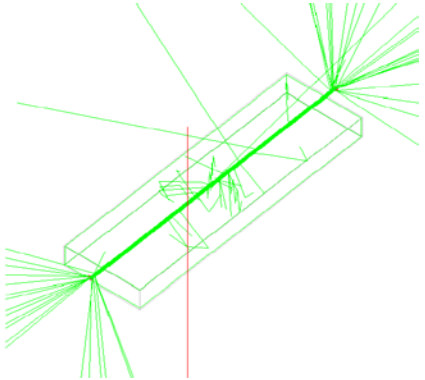
- We are continuing the detailed simulation of the ILD Muon System, in particular optimisation of the detection element Sc/WLS/SiPM;
- Near future is planned to organize the Test Setup in DESY West Hall;
- Readout System for 32 channels of SiPMs, Software is ready

Sc/WLS/SiPM Sensitive Element Simulation





Scintillation UV Photons (blue) are created by Muon (red) in Scintillator



Converted UV photons to to Green Photons (green) in WLS (scintillation photons are removed)

Signals Readout from Two Sides by SiPMs
(Possibility of longitudinal Coordinate Determination)

Plan of R&D (Optimization of the Sensitive Elements)

- Development of the Detection Elements: Scintillator Strip/WLS/SiPM with various geometry;
- Study of the main geometry elements: Reflection Couting, Slit for WLS, SiPM type;
- Study of the SiPM signal as a function of Scintillator Strip Thickness, number of WLS Fibers, Strip Length, up to 4 meters;
- Study of Time performance, study of the two Side SiPM Signals and Possibility of the Longitudinal coordinate resolution along the strip;