

Development of Radiation-Hard Scintillators and Wavelength-Shifting Fibers

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Future circular and linear colliders as well as the Large Hadron Collider in the High-Luminosity era have been imposing unprecedented challenges on the radiation hardness of particle detectors that will be used for specific purposes e.g. forward calorimeters, beam and luminosity monitors. We perform research on the radiation-hard active media for such detectors, particularly calorimeters, in two distinct categories: Quartz plates coated with thin, radiation-hard organic or inorganic compounds, and intrinsically radiation-hard scintillators. In parallel to the effort on identifying radiation-hard scintillator materials, we also perform R&D on radiation-hard wavelength shifting fibers in order to facilitate a complete active medium for detectors under harsh radiation conditions.

Here we describe the recent advances in the developments of radiation-hard scintillators and wavelength shifting fibers. We will discuss recent and projected measurements and future directions in development of radiation-hard active media.

Presenter: WINN, David (Fairfield University (US))

Session Classification: test beam results & analysis