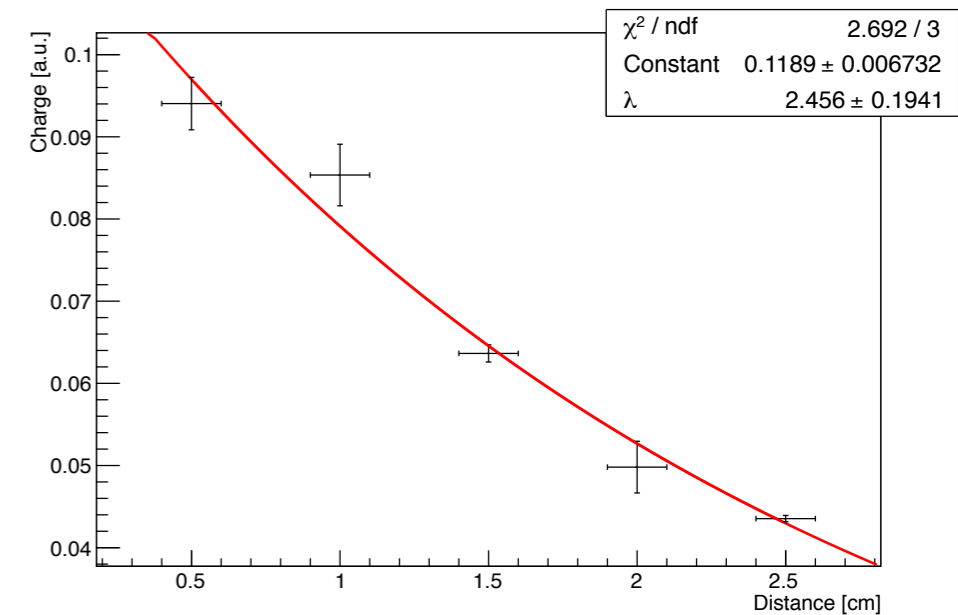
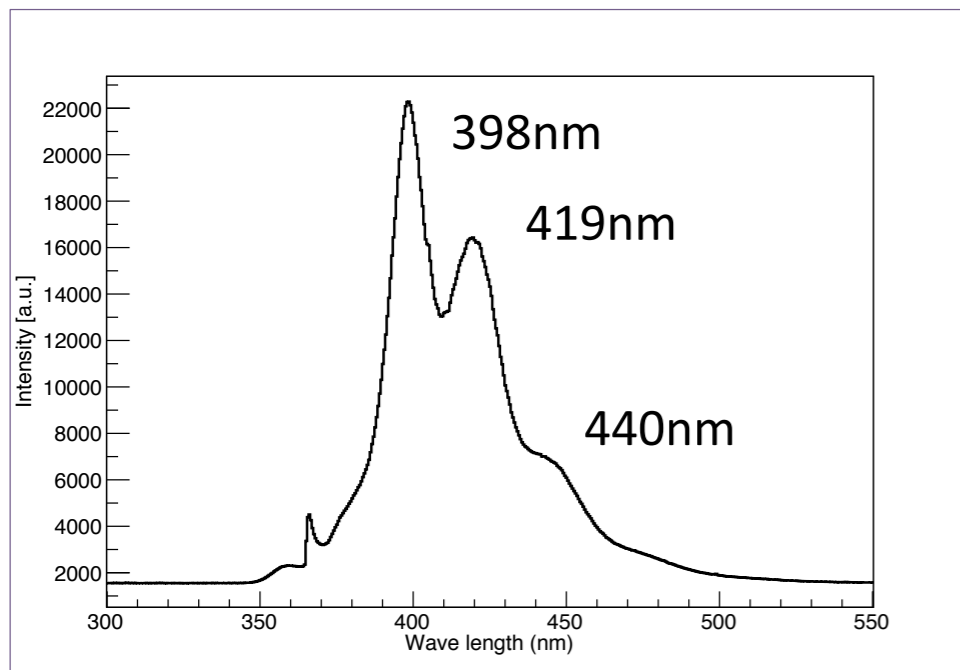


# Properties of Single Crystal Para-Terphenyl as Medium for High Resolution TOF Detector

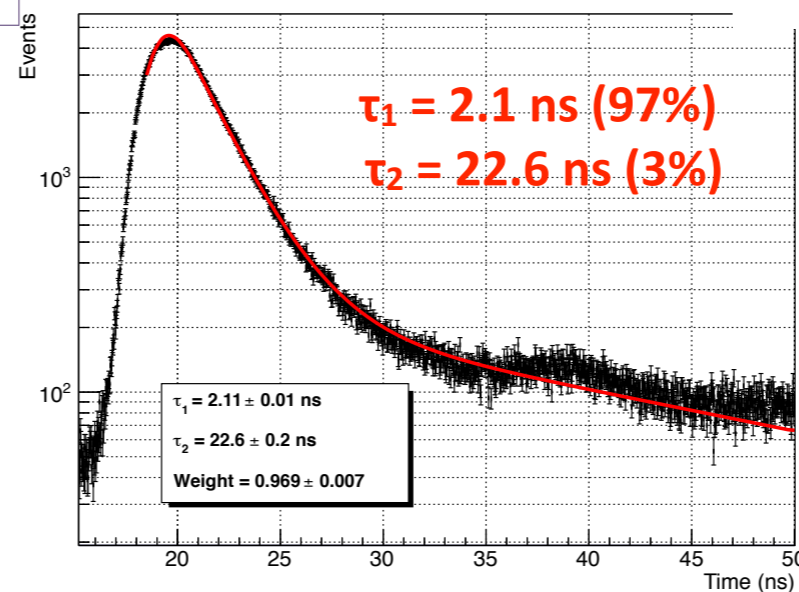


Among a large type of organic compound, para-terphenyl ( $C_{18}H_{14}$ ) have proven to have practical applications as detector medium for particle physics.

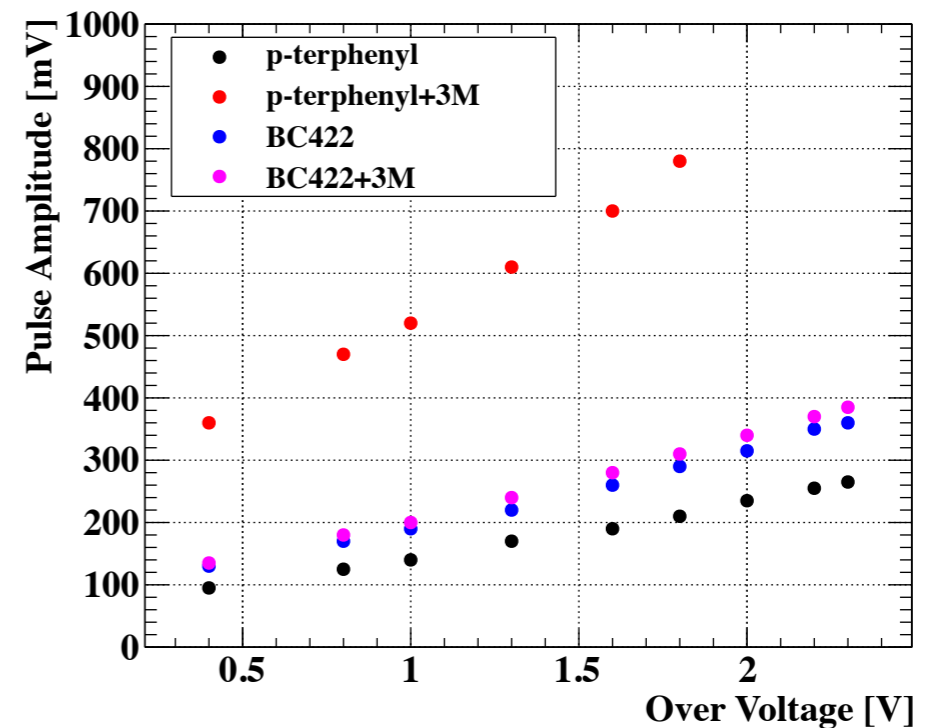
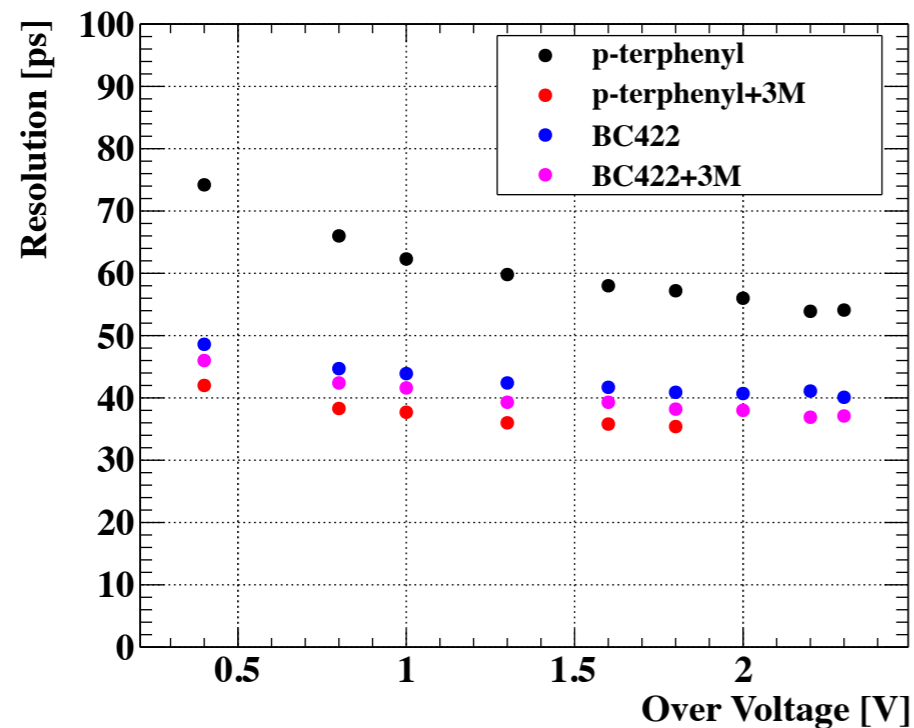
In this poster the characterization of different sizes (1-3 cm) high quality mono-crystal p-terphenyl samples is presented. The optical and scintillation properties (emission spectrum, light yield, attenuation length, decay time) are investigated.



attenuation length of 2.45 cm



Coupling a Silicon Photomultiplier-based readout system to the crystal, a small prototype for a high resolution TOF detector was built; the preliminary results, obtained on a 20x30x3 mm<sup>3</sup> sample, with dual-side read-out (Hamamatsu S10931-050P SiPMs) and irradiated with <sup>90</sup>Sr source, show a time resolution of ~35ps.



samples under test

