



Contribution ID: 360

Type: Poster

## Properties of single crystal para-terphenyl as medium for high resolution TOF detector

*Tuesday, 26 May 2015 15:42 (0 minutes)*

In the last years organic scintillators have been largely investigated in order to achieve high light yield together with good time response. It has been showed that pure organic compound with high quality crystalline structure can achieve both this goals. Among a large type of organic compound, para-terphenyl (C<sub>18</sub>H<sub>14</sub>) have proven to have practical applications as detector medium for particle physics. In this work, the characterization of different sizes high quality mono-crystal p-terphenyl samples is presented. The optical and scintillation properties (emission spectrum, light yield, attenuation length, decay time) are investigated. 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.

**Primary author:** DE GERONE, Matteo (GE)

**Co-authors:** BEVILACQUA, Adriano (GE); CORSINI, Dario (GE); SICCARDI, Fabio (GE); GATTI, Flavio (GE); PIZZIGONI, Giulio (GE); BIASOTTI, MICHELE (GE); Dr CERIALE, Valentina (GE)

**Presenter:** DE GERONE, Matteo (GE)

**Session Classification:** Applications - Poster Session

**Track Classification:** S4 - Applications