Contribution ID: **280** Type: **Poster**

Advances in Emulsion-Based (ECC) Detectors Data Analysis and Reconstruction Techniques

Wednesday, 23 May 2012 11:26 (0 minutes)

Nuclear emulsions quite popular in particle physics up to 60-th of the last century and nearly forgotten in following 30 years becomes an important option for high precision tracking detectors recently with the development of fast and completely automatic data acquisition systems makes the emulsion data treatment similar to one's of the electronic detectors. Tracking detectors based on nuclear emulsions has unique sub-micron position resolution, provides calorimetric information, has a long-term memory and particularly suitable for the study of rear events like neutrino interactions (OPERA detector). Them used also for muon radiography and medical applications. New promising application for the emulsions is a Dark Matter research.
In this report reviewed specific methods relative for the emulsion data analysis, tracks, vertices and showers reconstruction, particles identification and event topology analysis. Specific and particularly important for the success of the emulsions data reconstruction alignment technique based on tracks pattern recognition in heavy signal/noise conditions will be discussed. Depending to the application different patterns -events particles, cosmic rays or Compton scattering particles can be used. Nowadays nuclear emulsions can be compared to a high-density DVD-like storage media, used in high-scale experiments and requires high-performance, specifically developed processing and data analysis tools algorithms and methods.

Primary author: TIOUKOV, Valeri (INFN - Napoli)

Presenter: TIOUKOV, Valeri (INFN - Napoli)

Session Classification: Front End, Trigger, DAQ and Data Management - Poster Session

Track Classification: P4 - Front End, Trigger, DAQ and Data Management