

CDC Cosmics Update

Tracking Meeting | 3.3.2017

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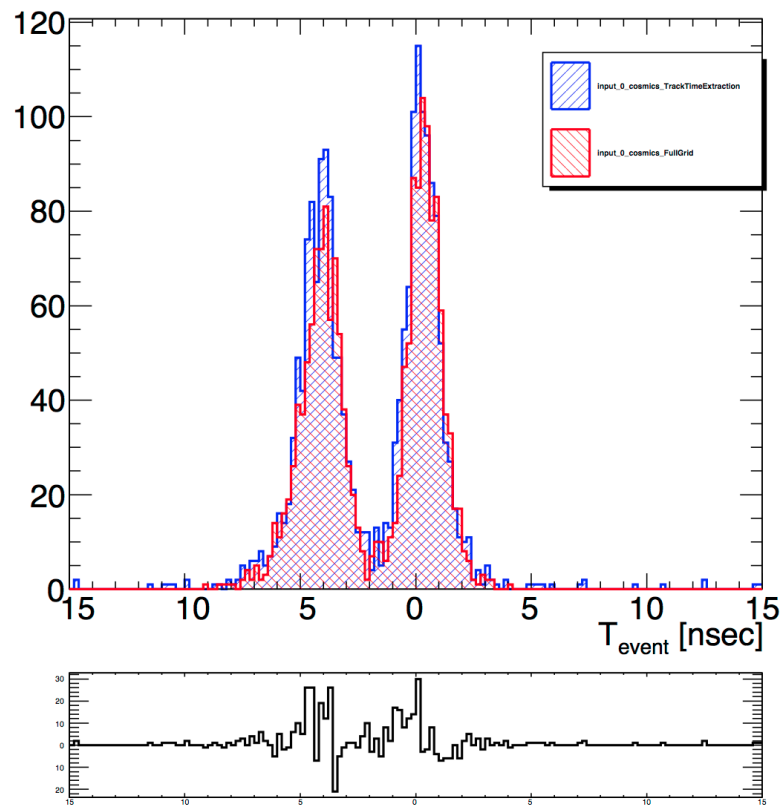


Cosmics Setup for Autumn 2017

- **Combined CDC / TOP / ECL / KLM Cosmic Test**
- **Scintillator Trigger will be located at the IP, but propably not all of the time due to QCS installation**
- **Full CDC volume instrumented**
- **Assume that TOP cannot provide precise t0 information in the beginning**
- **Goal: use the T0 extraction feature of genfit for time extraction from CDC measurements**
- **Progress tracked and discussed at**
<https://agira.desy.de/browse/BII-1621>

Bugfix for T0 extraction code

- The `SelectionForTrackTimeExtractionModule` finds the track best suited for time extraction (until recently highest Pt track)

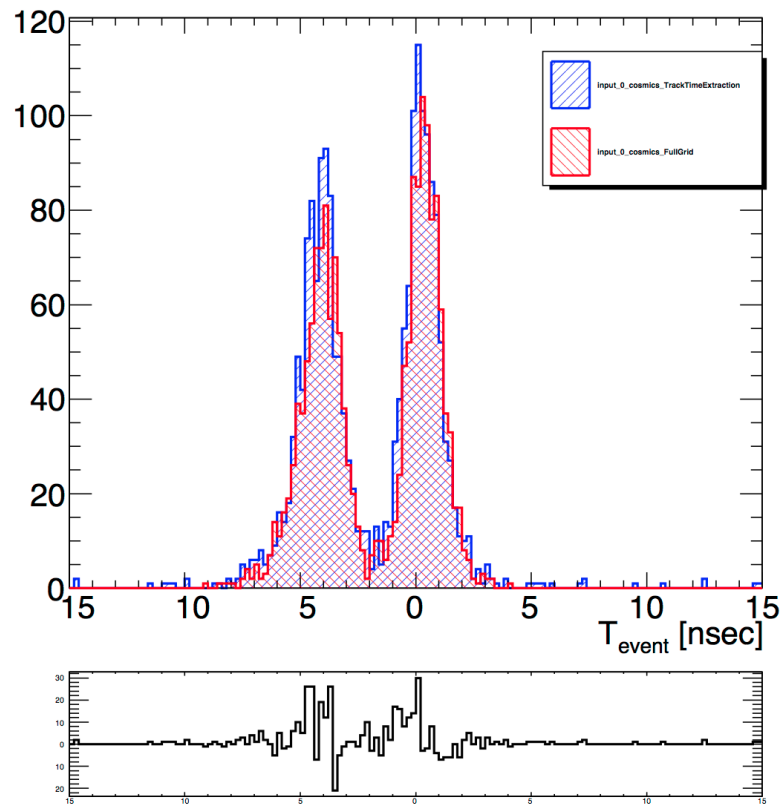


Plot courtesy of Uchida-San

- For tracks from the upper half of the CDC, we see a $\sim 4\text{ns}$ shift

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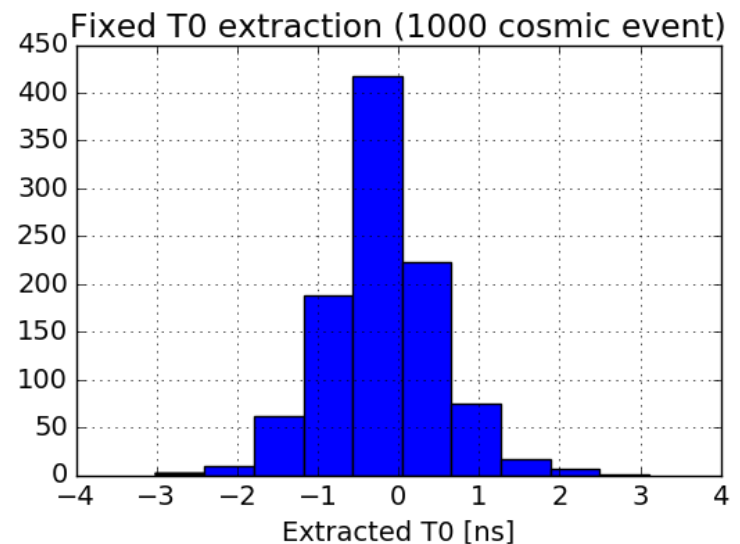
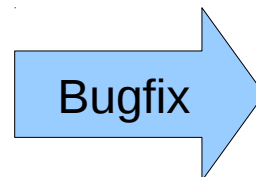
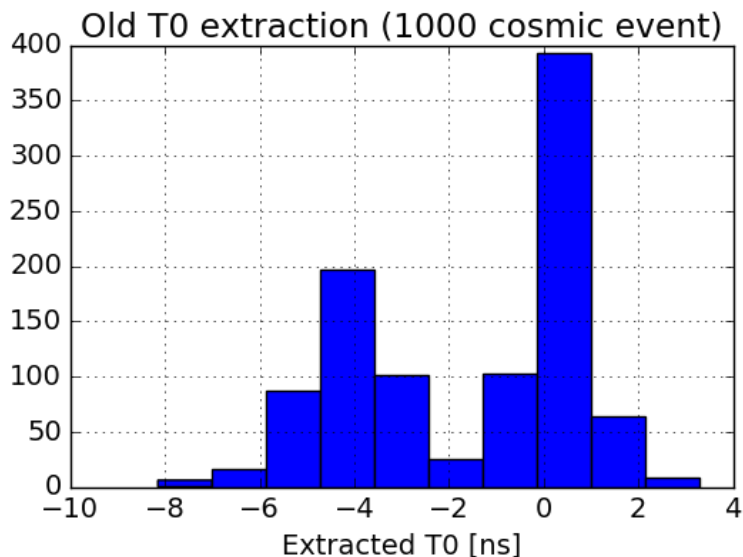


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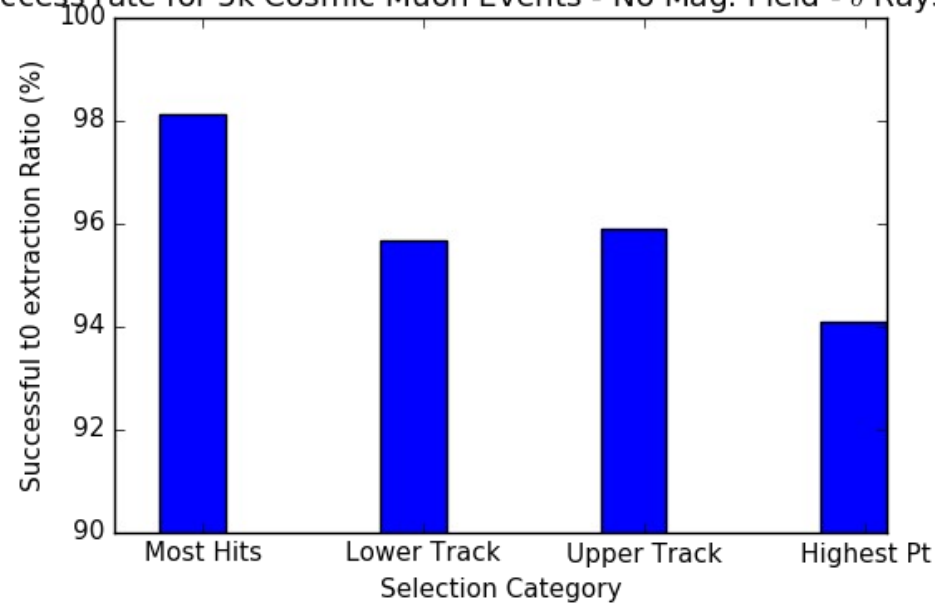
Bugfix for T0 extraction code

- Small but important bugfix: The seed time of the RecoTrack was not transferred properly

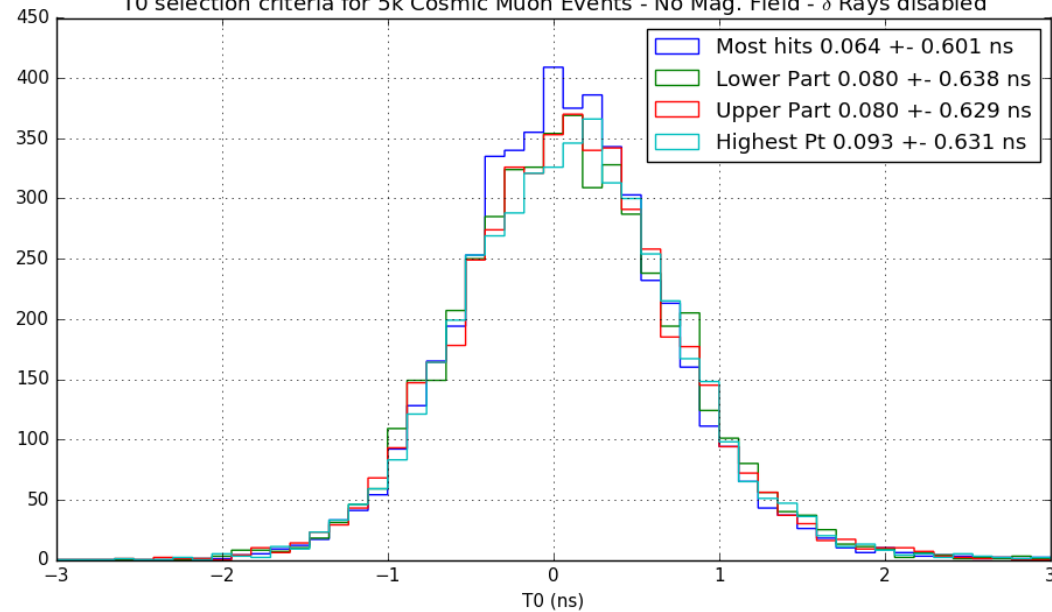


Best Track Studies

T0 success rate for 5k Cosmic Muon Events - No Mag. Field - δ Rays disabled

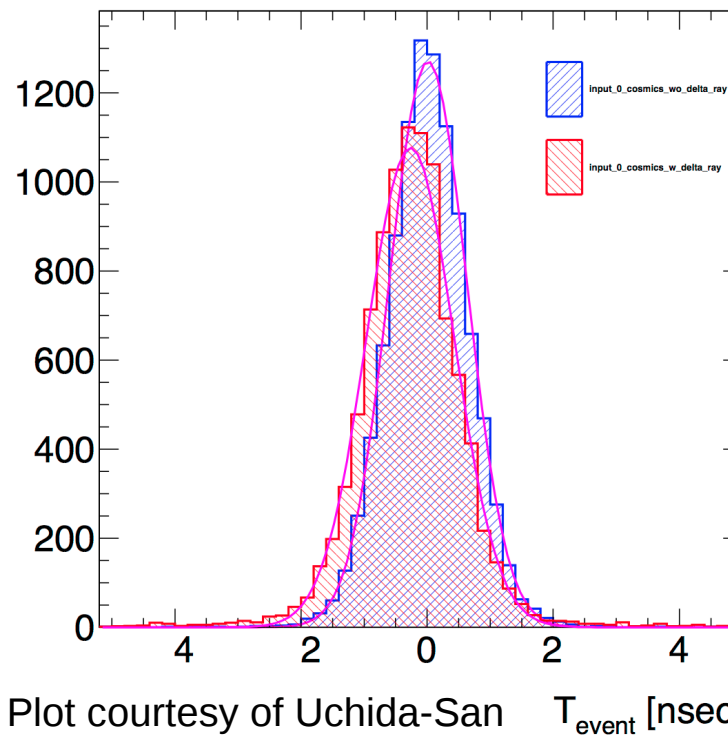


T0 selection criteria for 5k Cosmic Muon Events - No Mag. Field - δ Rays disabled



Open Issue: Delta-Ray emission

- Emission of e- delta-rays is influencing the drift time measurement and the t_0 extraction

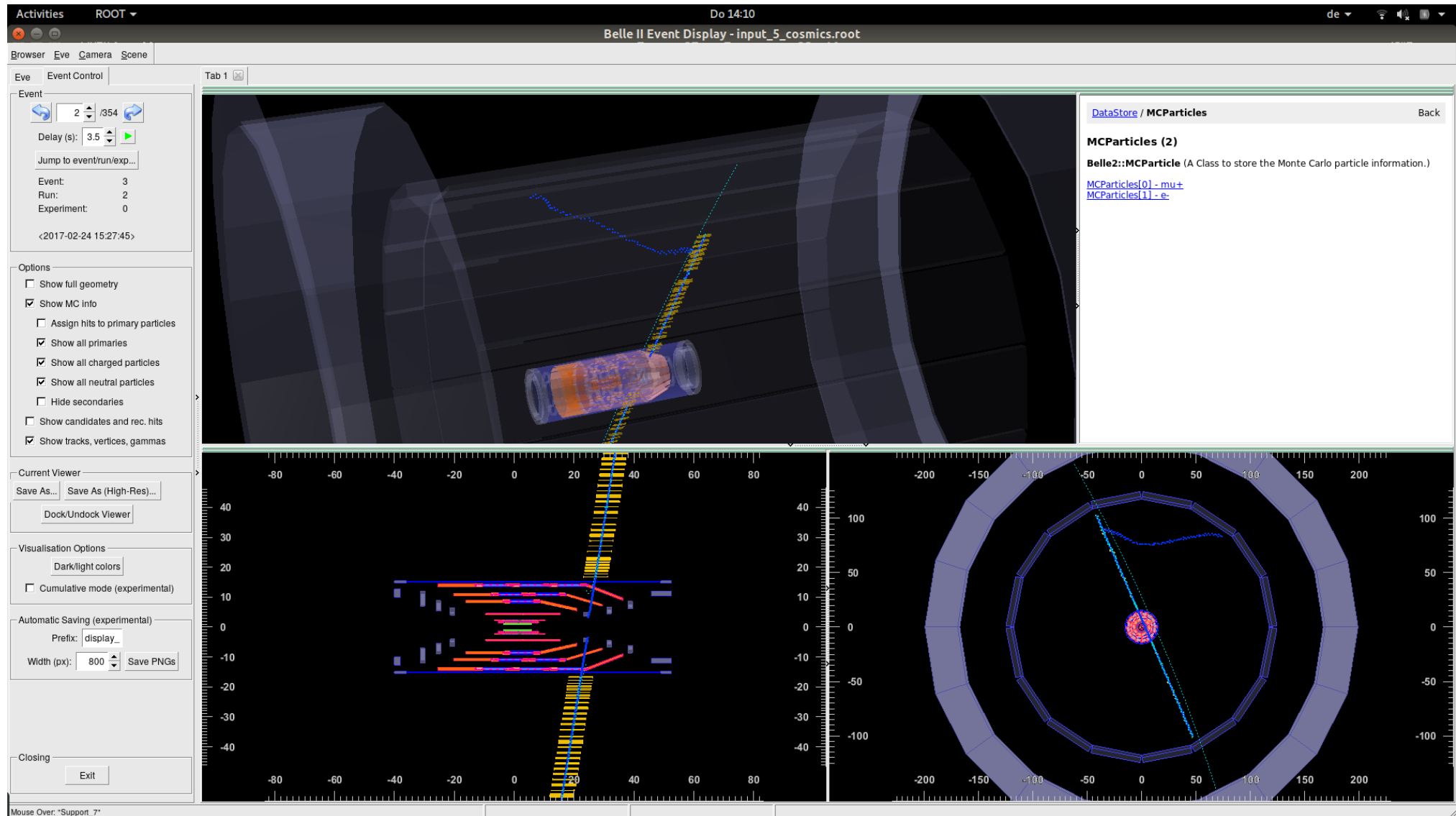


Normal Simulation
Delta-Rays disabled in
simulation (NOT REALISTIC)

Ideas

- Use 2nd hit information to detect delta-ray information. According to Ozaki-san might help, but still working to implement 2nd hit treatment
- Reject all events with more than 2 tracks (some delta-rays get found and reconstructed as tracks)

Event Display Delta-Ray



Event Display Delta-Ray

