

SpdRoot development and communications

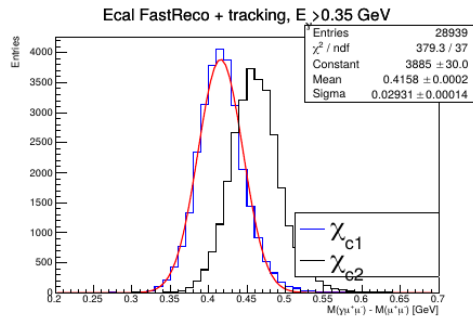
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SPD Physics Weekly
12.09.2023

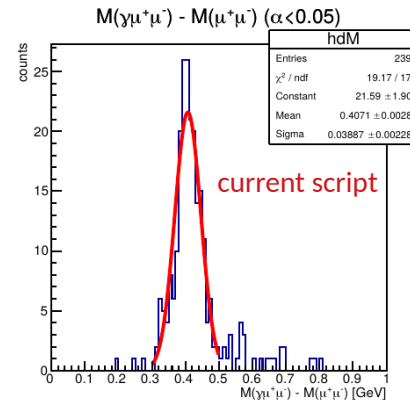
- We resume weekly meetings. Please report your progress!
- Next **Physics & MC meeting**: 20.09.23
- Collaboration Meeting: October 23-27

Recent SpdRoot changes (geometry-update-spring-2023)

- **Modified geometry:** (see talk by A. Korzenev at the last CM): **RS** (Alexandr), **ECal** (Andrey), **AEG** (Artem), **TOF** (Artem), moved **TS** endcaps (Ruslan), update of **BBC** (Zhanibek, not everything committed)
- **Update physics examples:** **jpsi-mumu**, **chic**, added README and wiki entry <https://git.jinr.ru/nica/spdroot/-/wikis/Analysis>



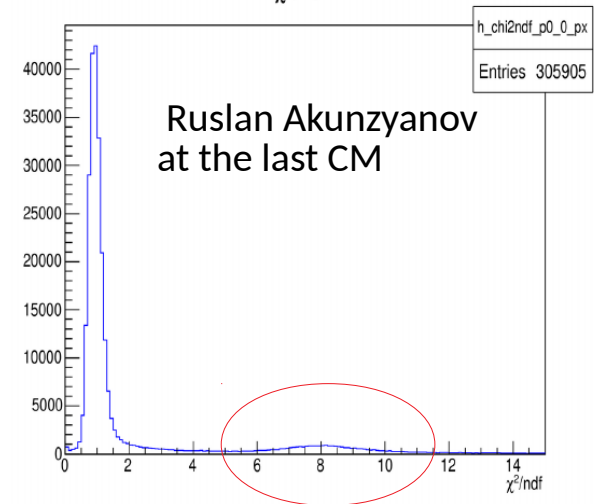
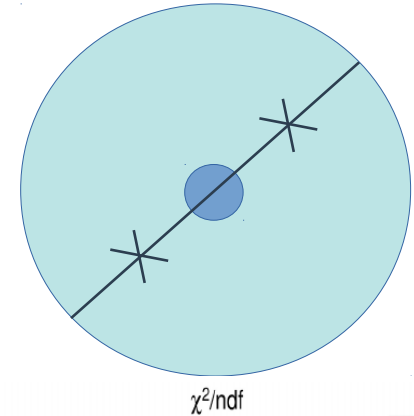
CDR



- We may expect **constraint fit of the track momenta to the primary vertex** soon (Vladimir Andreev is working on that)

SpdRoot: issued with reconstruction

- Solved problem with **tracks crossing the wire in straw**: track hits with two or more points created **are now ignored** (a **temporary solution**).
- Fixed bug with zero χ^2 for secondary vertex reported by Amaresh and Artem).
- Issue with **TOF geometry** in barrel (found by Artem and Leonid) is fixed by Artem Ivanov.
- An issue of **missing tracks** in the primary vertex is being investigated by Elena



SpdRoot: important steps

- Secondary vertex reconstruction (**volunteers?**):
 - Reconstruction of **D-mesons** should fully moved to user analysis stage. Standard reconstruction should reconstruct only particles like K_S , Λ , ...
 - In case K_S , Λ only **realistic PID** should be used (if necessary, no references to MC-truth)
 - When searching for D-meson candidates it's necessary to **remove tracks from primary vertex**. This can be done quickly for the KFParticle package. We need to have SpdRoot task for that.
 - It would be nice to have D-meson reconstruction available as a package (routine) in SpdRoot
- Scripts to test correctness of reconstruction of **each subsystem** (**volunteers?**).
- Andrey Gridin started working on hit reconstruction in RS, which includes combinatorial hits.

```
AliKFVertex PrimVtx( ESDPrimVtx); // Primary vertex construction
AliKFParticle PiPlus( ESDPiPlus, 211 ); // Construction of daughters
AliKFParticle KaMinus( ESDKaMinus, 321 ); //

AliKFParticle D0( PiPlus, KaMinus ); // Construction of D0 at its decay vertex

PrimVtx -= PiPlus; // Subtract PiPlus, KaMinus from the primary vertex
PrimVtx -= KaMinus; // ( if they was was used in the ESDPrimVtx fit )

PrimVtx.AddDaughter( D0 ); // Improve the primary vertex. ( One can type "PrimVtx += D0;" )

D0.SetProductionVertex( PrimVtx ); // D0 is now fully fitted

PiPlus.SetProductionVertex( D0 ); // PiPlus is now fully fitted
KaMinus.SetProductionVertex( D0 ); // KaMinus is now fully fitted
```

S. Gorbunov, 2008

Thank you!