ALICE weekly meeting update

ρ mass spectrum analysis

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Progress since last update

- Started on producing the mass spectra for ρ mesons
- Plan to first construct the spectra using p - p data and then non-central Pb – Pb events to acquire an accurate measurement of the ρ mass (~775 MeV) and width (~149.1 MeV).
- Then move onto central Pb – Pb events to observe mass shift (if any).
- Applied like-sign background section and DCA to primary vertex track selection to obtain primaries.

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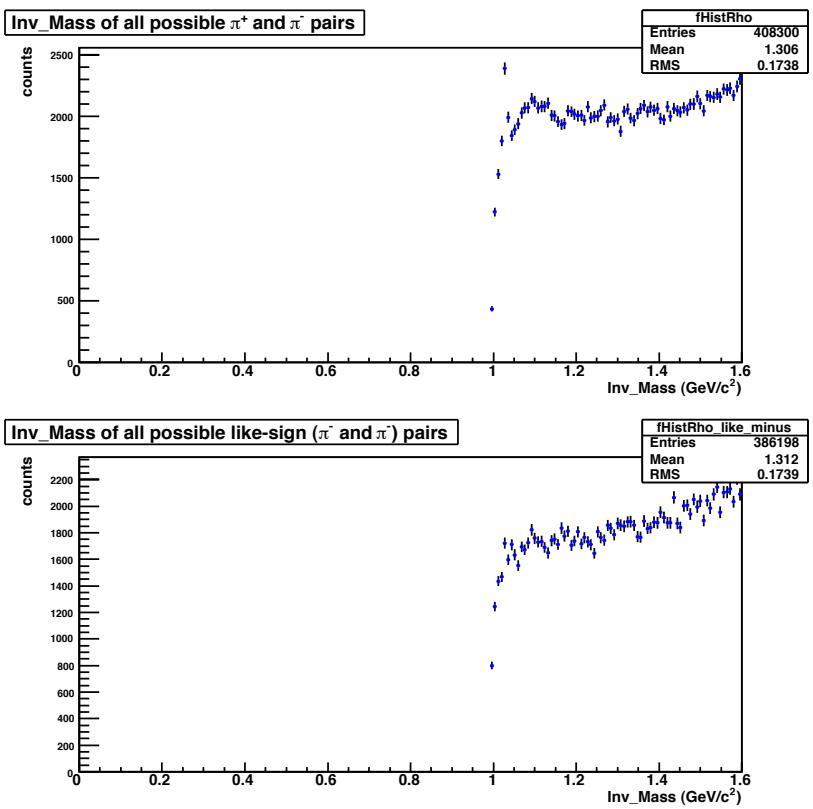
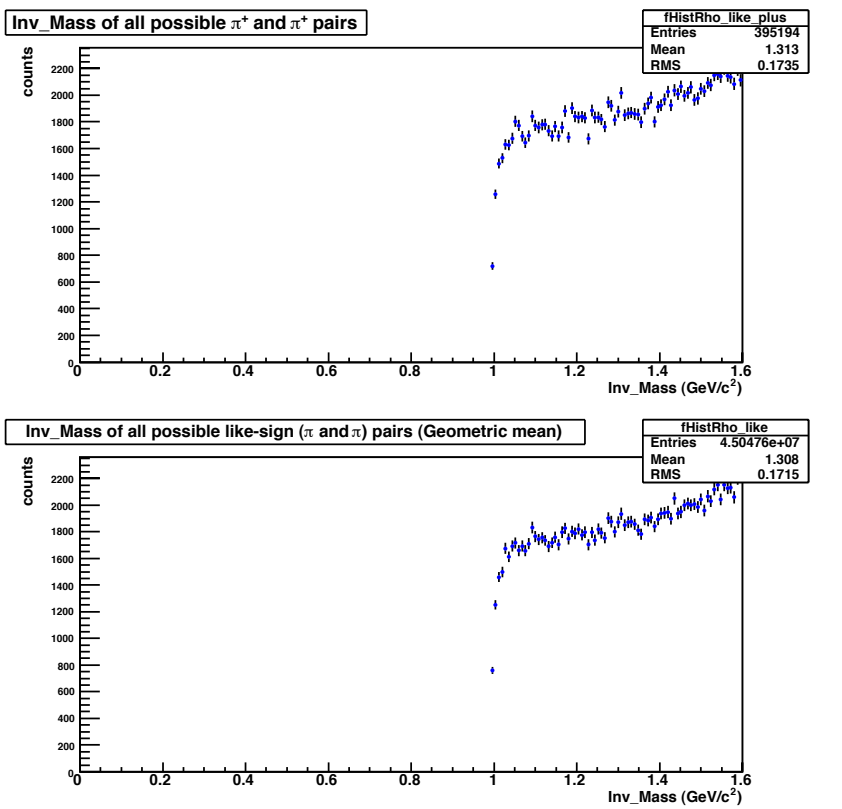
Tests of PID using κ^+ and κ^- to identify ϕ peak





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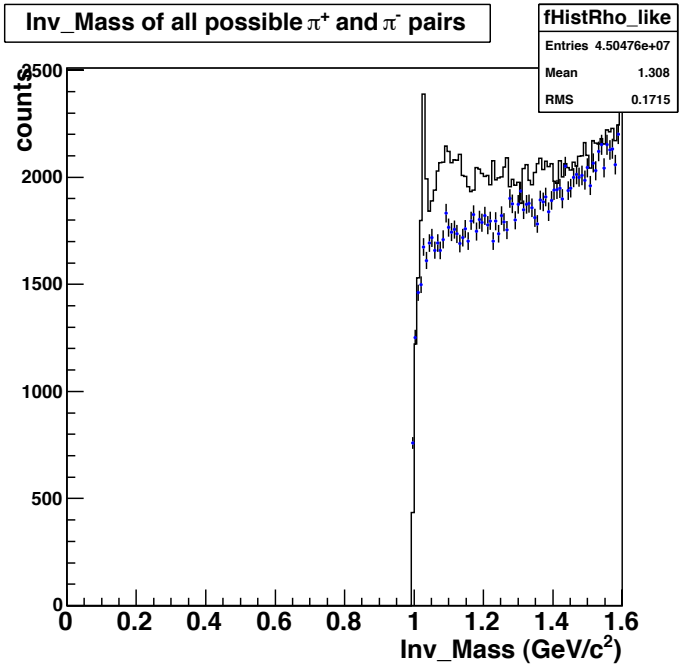
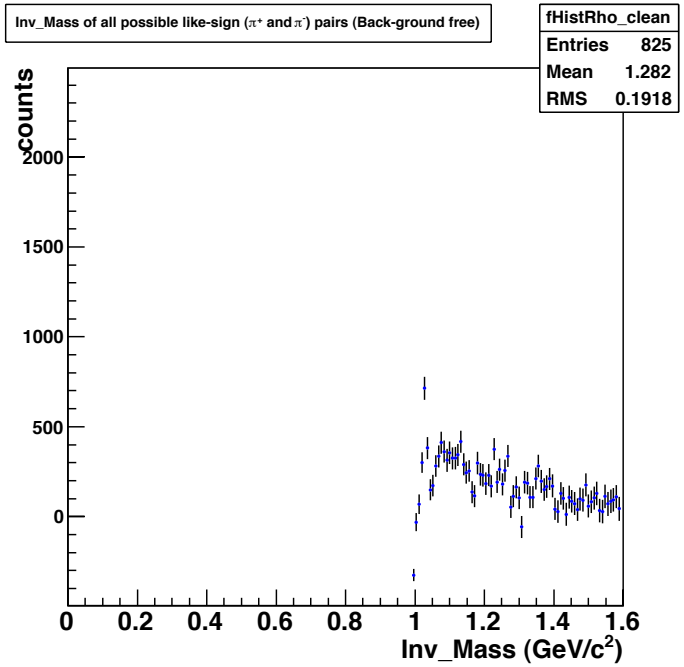
Cuts used

- PID on κ (1 sigma)
- Cuts on number of points in ITS (>=70)
- Cuts on DCA to primary vertex (> 0.5cm in transverse and > 3cm in longitudinal)
- Like-sign background subtraction (using geometric mean)





- Clear Φ peak at 1020 Mev

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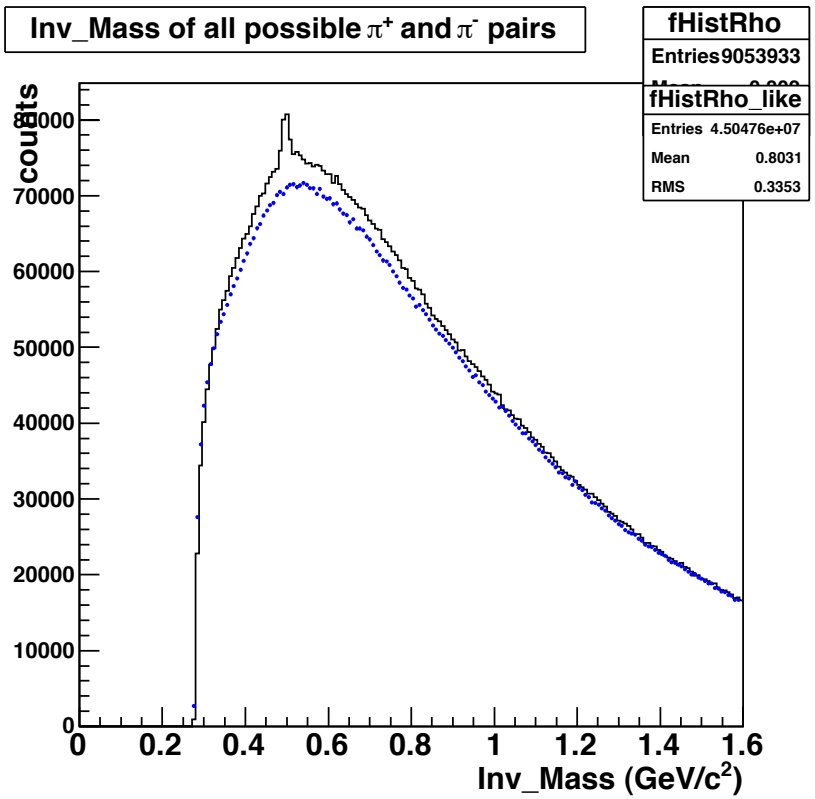
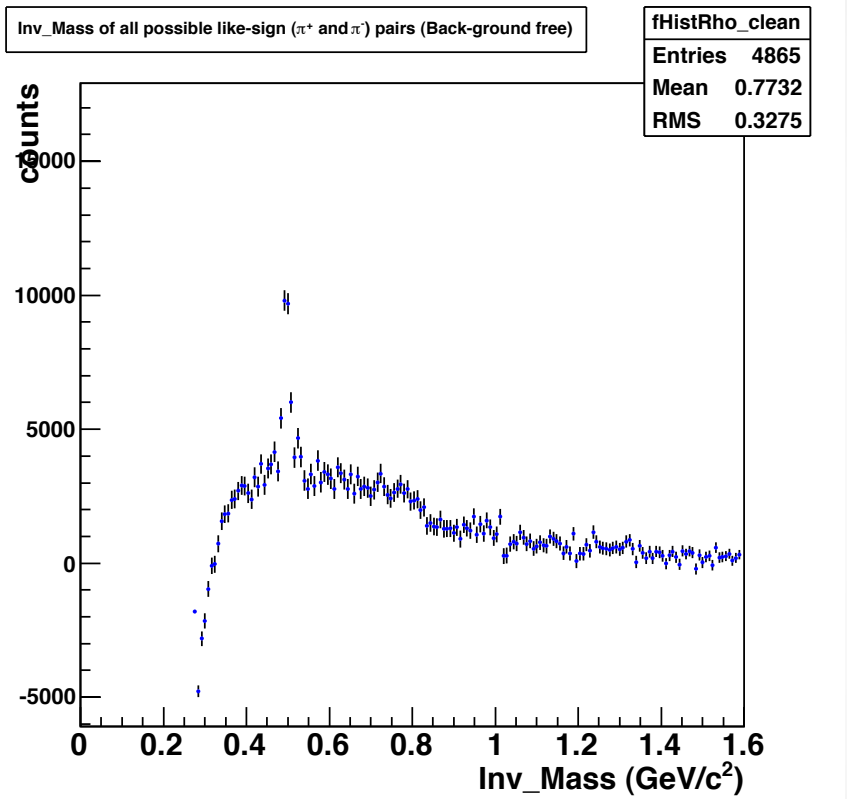
Pion Inv mass without DCA cuts

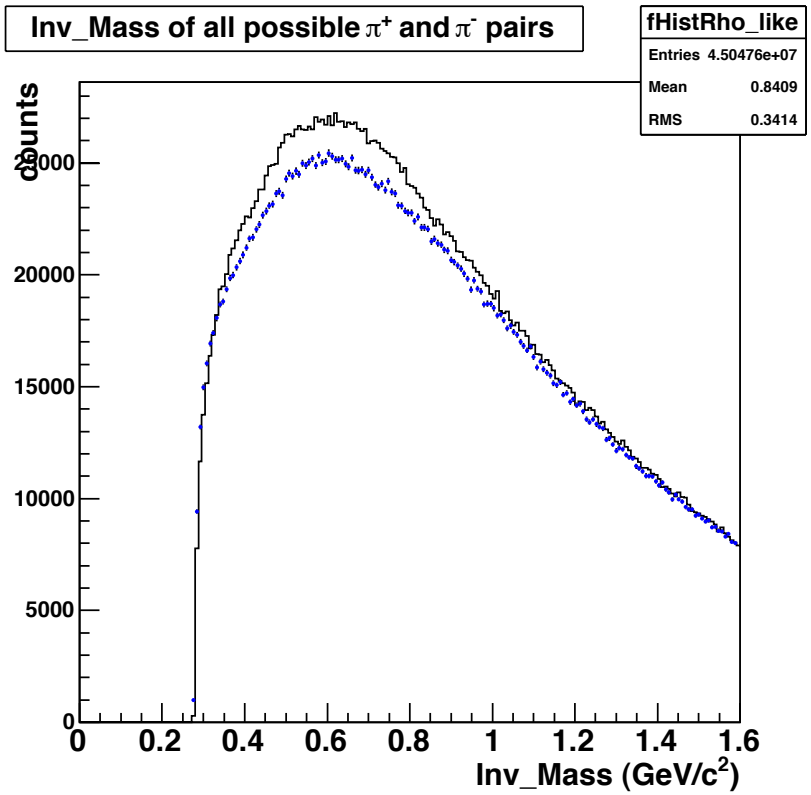


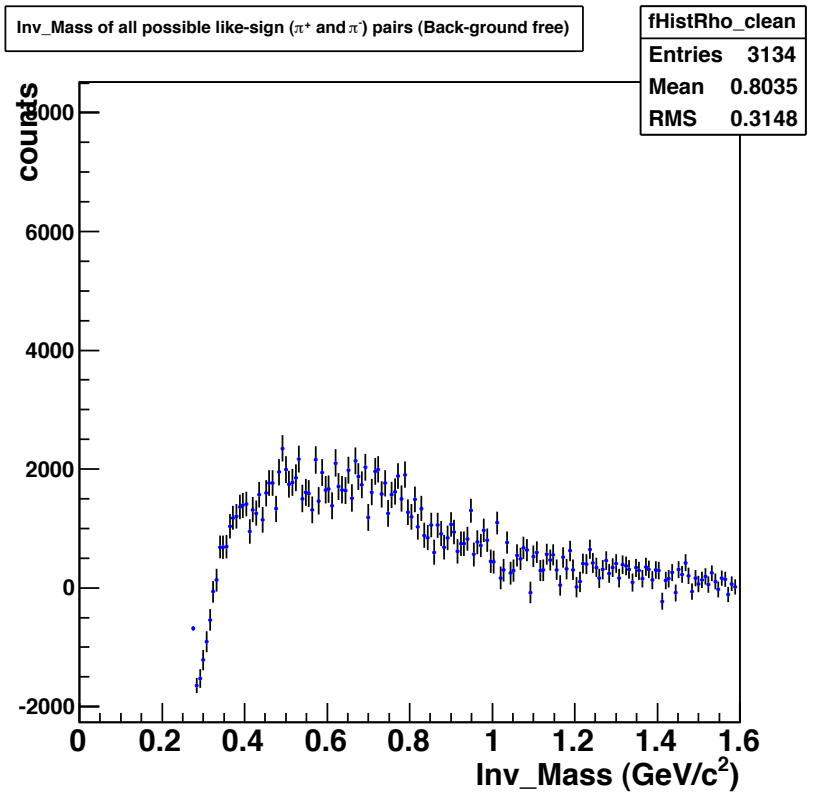


- Clear κ^0_s peak at 498 Mev as…

$$\kappa^0_s \rightarrow \pi^+ \pi^- \ (\sim 69\%)$$

Pion Inv mass with DCA cuts





- κ^0_s peak is removed by cuts.
- ρ still unclear.

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Plans for next week

- Fine tune cuts

- Run over more events (so far these plots have been made with ~300,000 events) aim for > 1,000,000 events. This will be in the hope that features like the ω peak will become clearer.

Thank you

Any questions?