$\gamma\, p \rightarrow p\, K^{-}\, K^{+}\, \gamma\, \gamma$
Background Analysis

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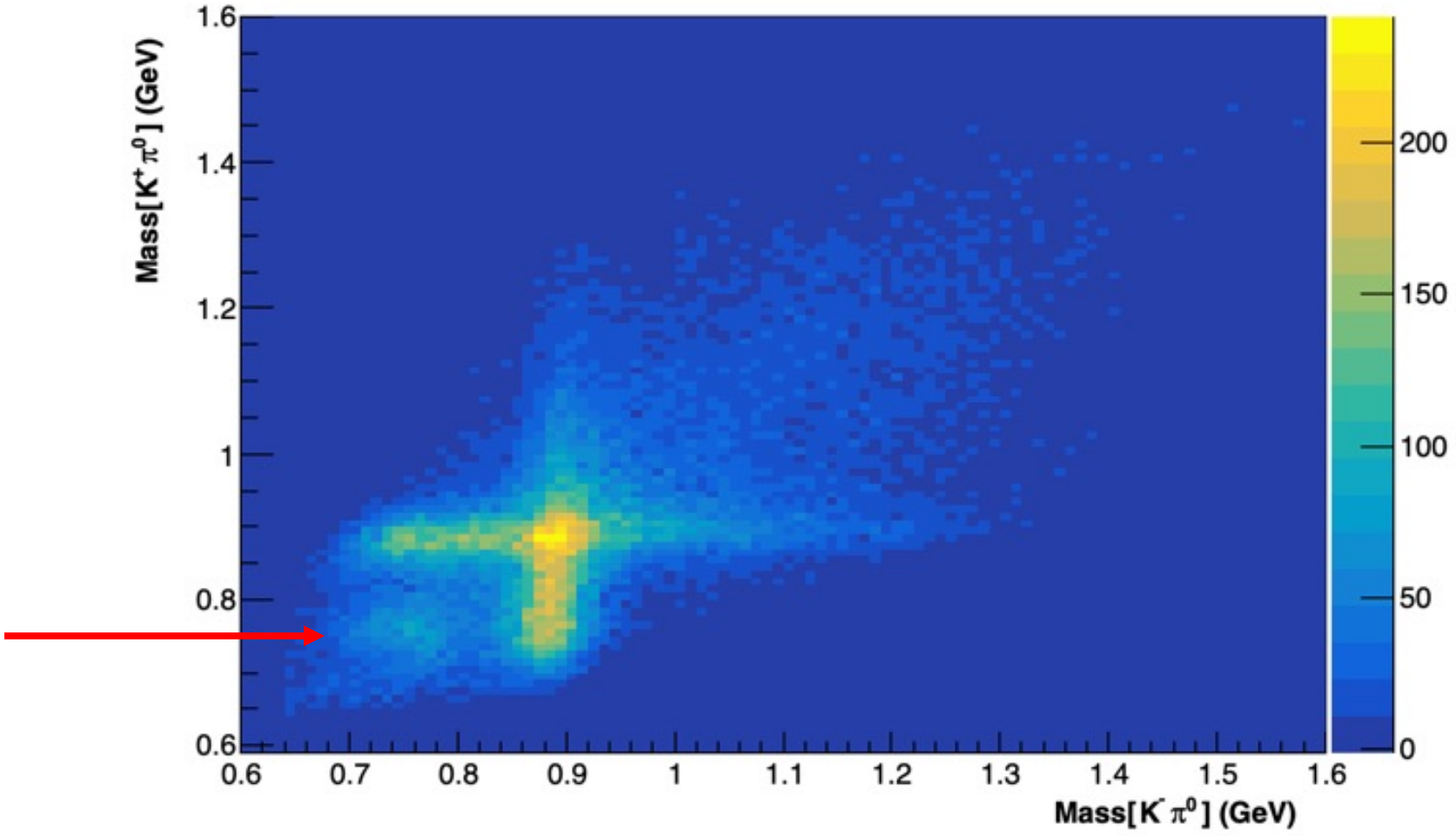
Event Selection

- $K^{\pm}$ hit in the TOF
- $K^{\pm}$ momentum is < 3.0 GeV
- Measured mass(p) > measured mass(K^{+})
- π^{0} reconstructed from γ γ

Enhancement in mass($K^{\pm}\pi^{0}$) < mass($K^{*}(892)$)



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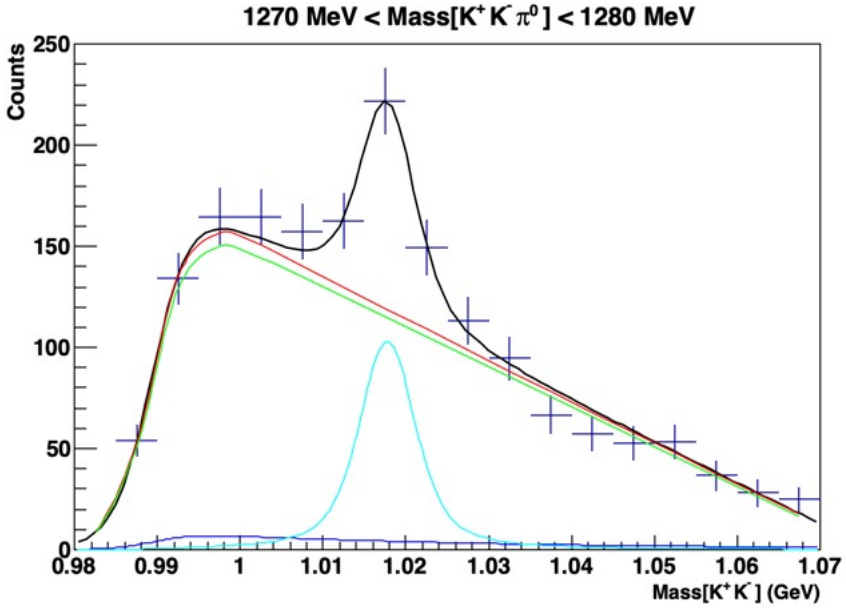
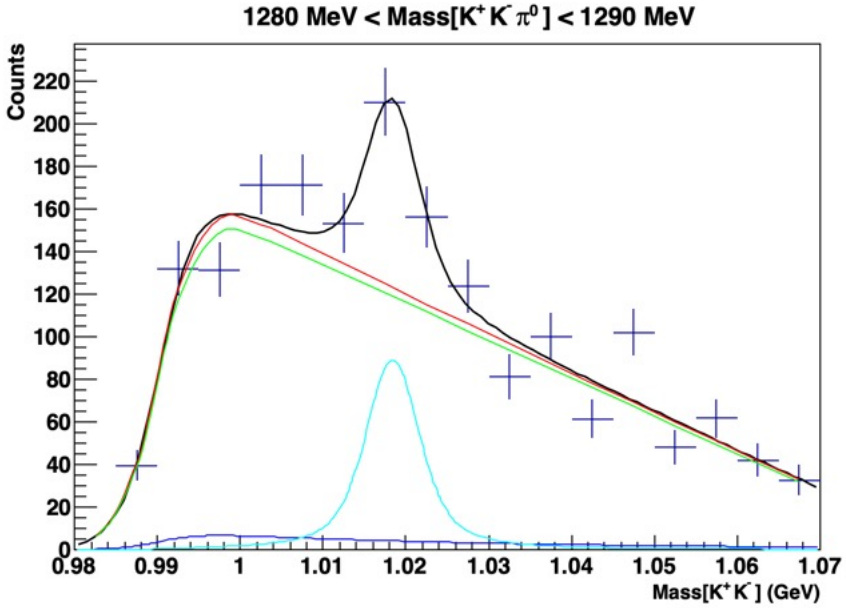
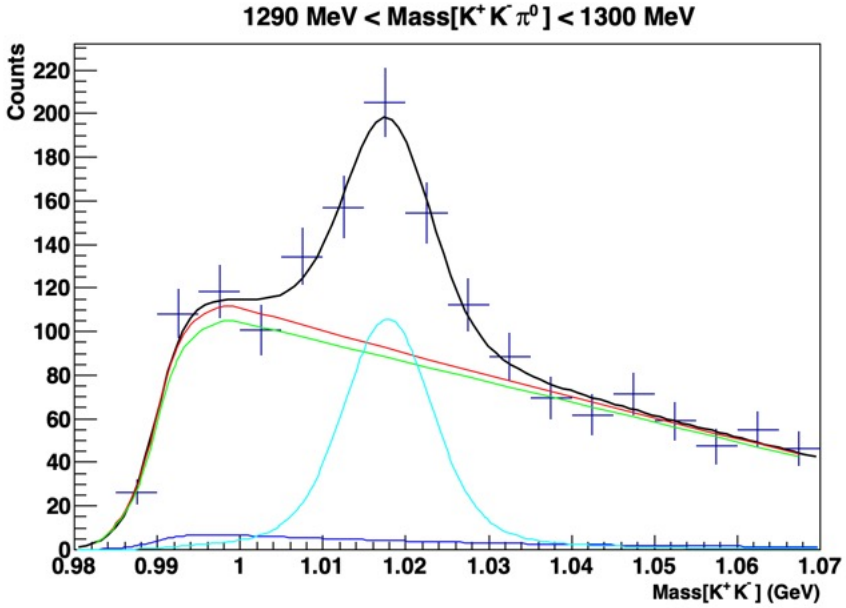
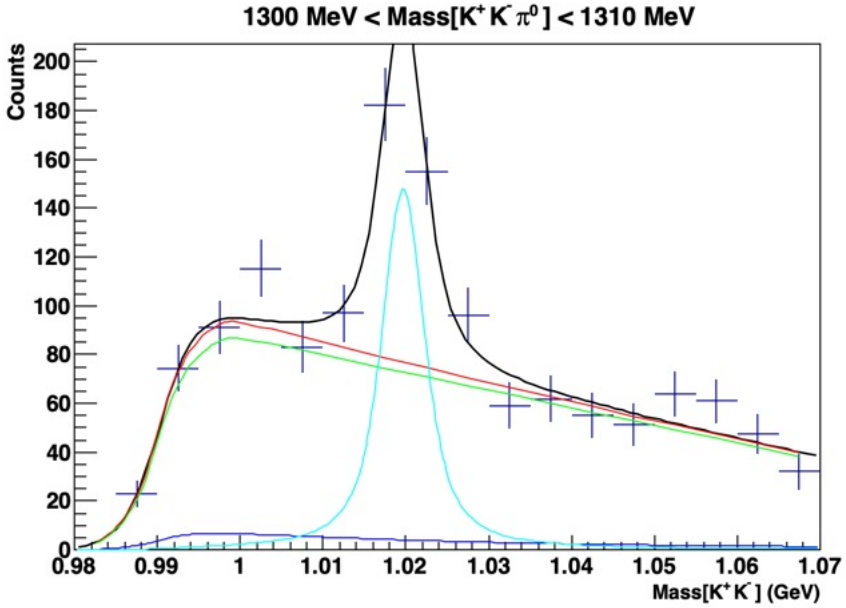
Fitting of K^+K^-

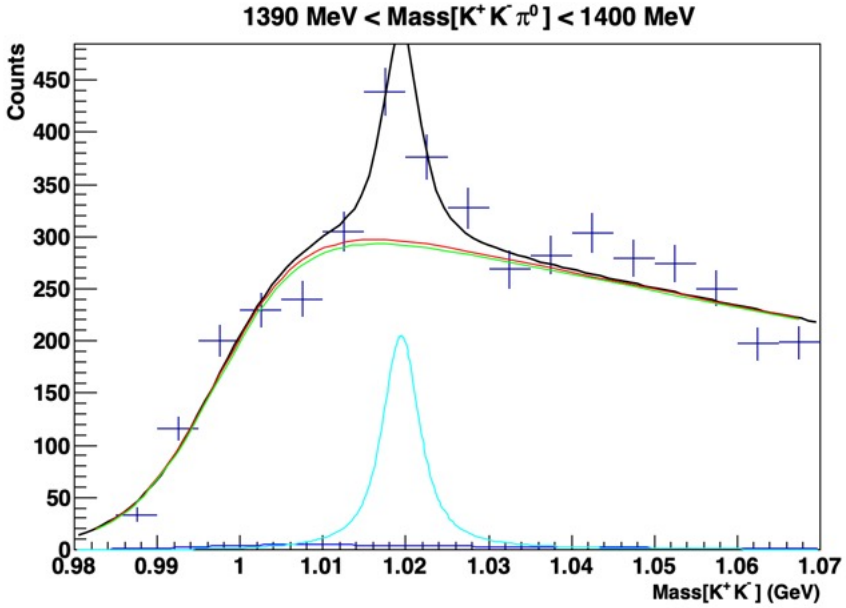
- Voigt function used
- Smear parameter calculated by fitting mass(K^+K^-) with Gaussian near mass($\phi(1020)$) and comparing resulting width to PDG width of $\phi(1020)$ equal to 4.249 MeV
- First-order polynomial multiplied by sigmoid function used for background to simulate near-threshold behavior

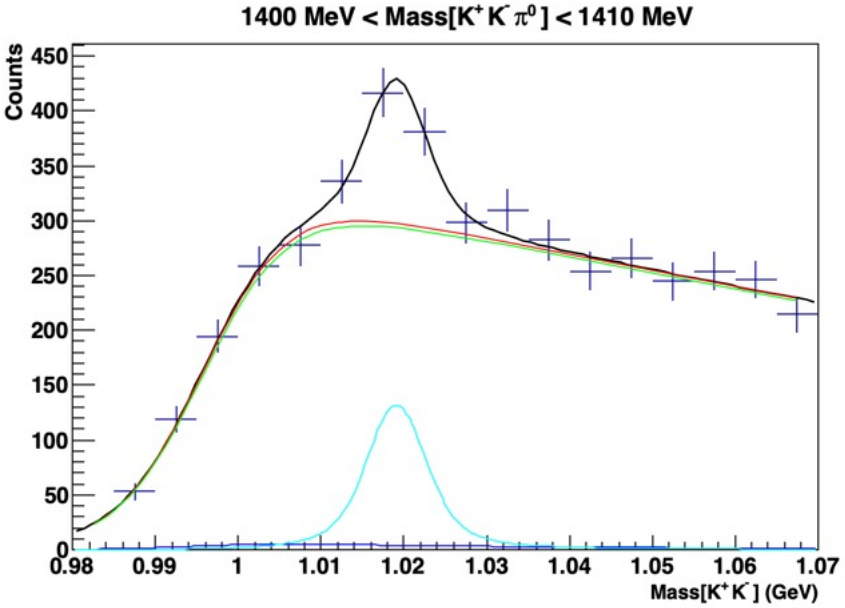

1270 MeV < Mass[K⁺K⁻π⁰] < 1280 MeV
Counts
Mass[K⁺K⁻] (GeV)

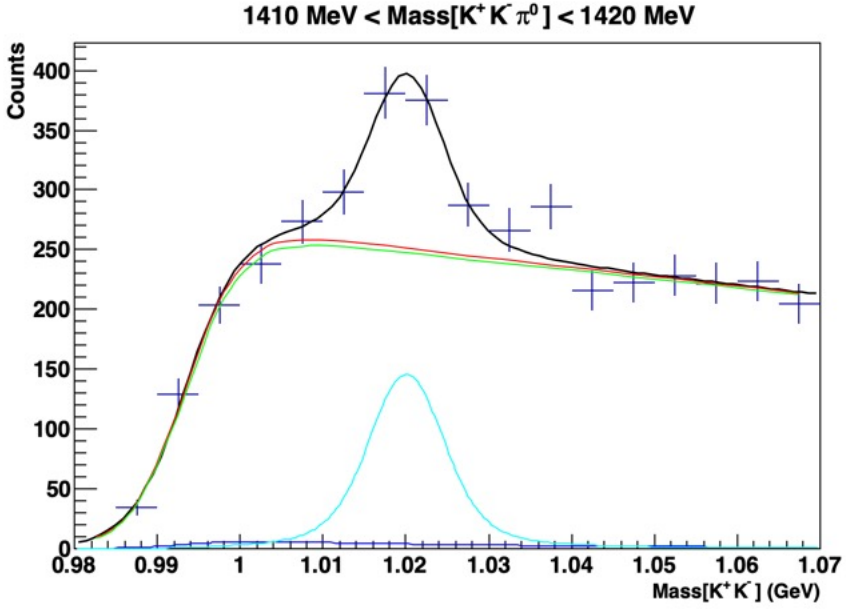

1280 MeV < Mass[K⁺K⁻π⁰] < 1290 MeV
Counts
Mass[K⁺K⁻] (GeV)

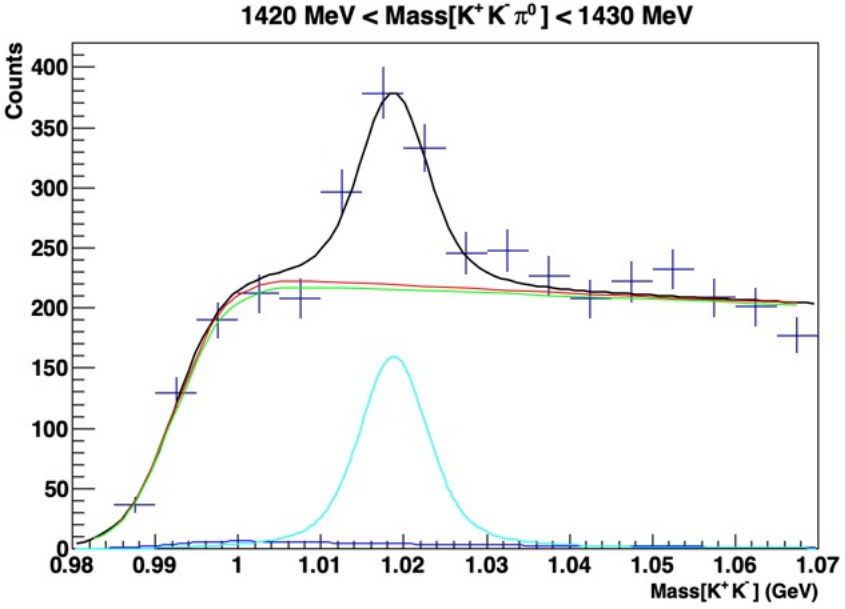

1290 MeV < Mass[K⁺K⁻π⁰] < 1300 MeV
Counts
Mass[K⁺K⁻] (GeV)


1300 MeV < Mass[K⁺K⁻π⁰] < 1310 MeV
Counts
Mass[K⁺K⁻] (GeV)

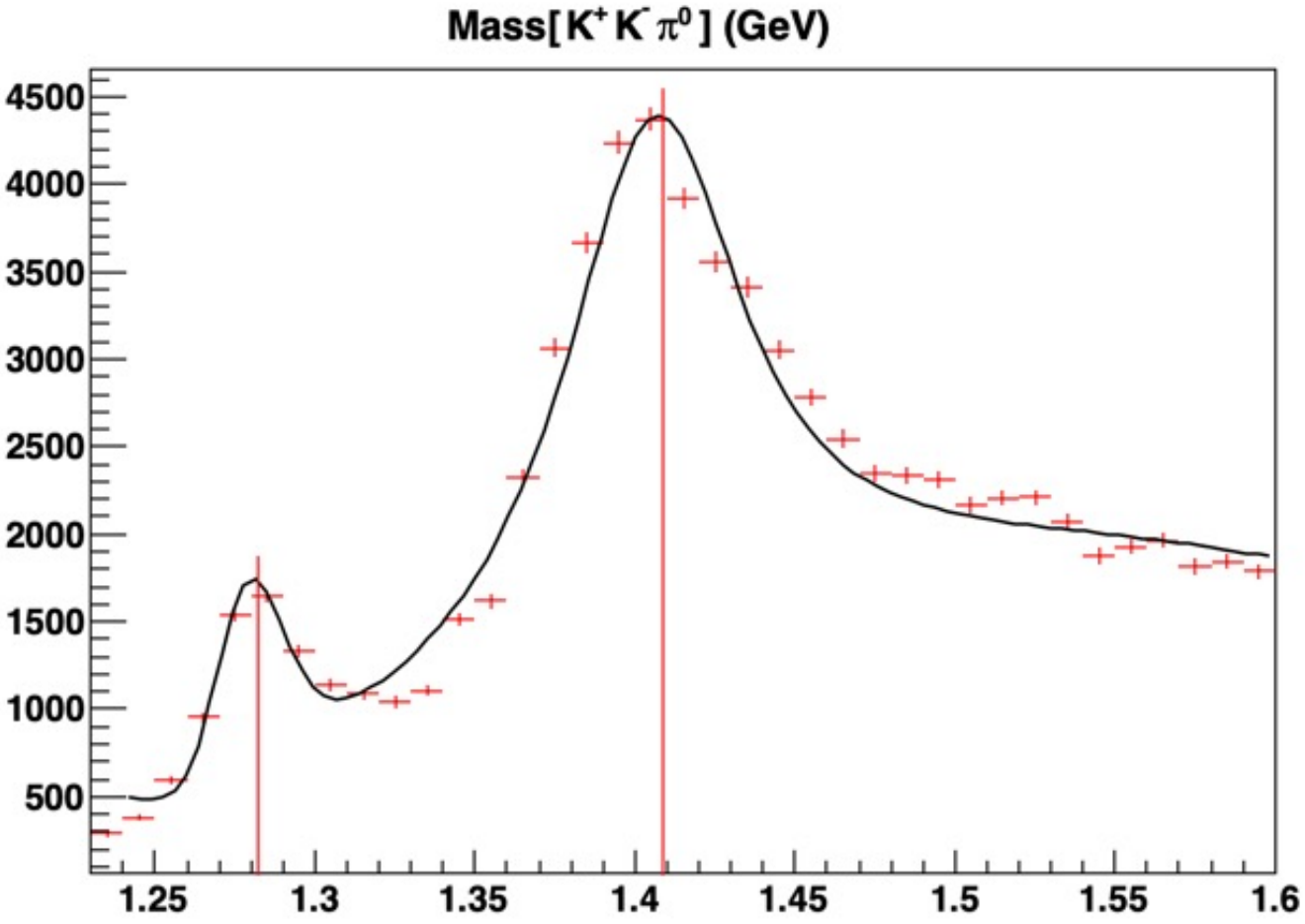

1390 MeV < Mass[K⁺K⁻π⁰] < 1400 MeV
Counts
Mass[K⁺K⁻] (GeV)


1400 MeV < Mass[K⁺K⁻π⁰] < 1410 MeV
Counts
Mass[K⁺K⁻] (GeV)


1410 MeV < Mass[K⁺K⁻π⁰] < 1420 MeV
Counts
Mass[K⁺K⁻] (GeV)


1420 MeV < Mass[K⁺K⁻π⁰] < 1430 MeV
Counts
Mass[K⁺K⁻] (GeV)

All K^+K^- bins included



μ = 1.279 GeV μ = 1.406 GeV

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