

# Group meeting

## March 15<sup>th</sup>, 2024



# Instruction responsibilities

- Classes:
  - PHY 252:
    - Two lectures
    - Graded homework
    - Created pdf of next homework assignment
  - PHY 331:
    - Two lectures
- Undergraduate independent study and research:
  - Luis: Looked at field-type Lagrangian for a string
  - Preston: Met just prior to this meeting

# Service responsibilities

- Committee:
  - GlueX Compton Analysis Review Committee:
    - Current status of committee = Finally are moving forward 😊.  
Committee chair is compiling all member comments into a document to send to the authors
  - Graduate College Completion Fellowship Committee:
    - Printed packets
    - Started scoring this morning
  - Pre Award Faculty Panel:
    - Status : Candidate decided they did not want the position => Start over again
  - Next week: High school students
    - Need all of you to be at Poly on Friday

# Group responsibilities

- The grant money is finally showing up in the regular accounting. Only took 6 months out of a 12 month grant allotment!
- Worked on cluster when required
- Met with Katelyn Tuesday and Thursday

# Analysis

**Presentation I gave on Wednesday**



$K^+K^-\pi^0$  update

First look at  
PWA using phase space  $KK\pi$  mass

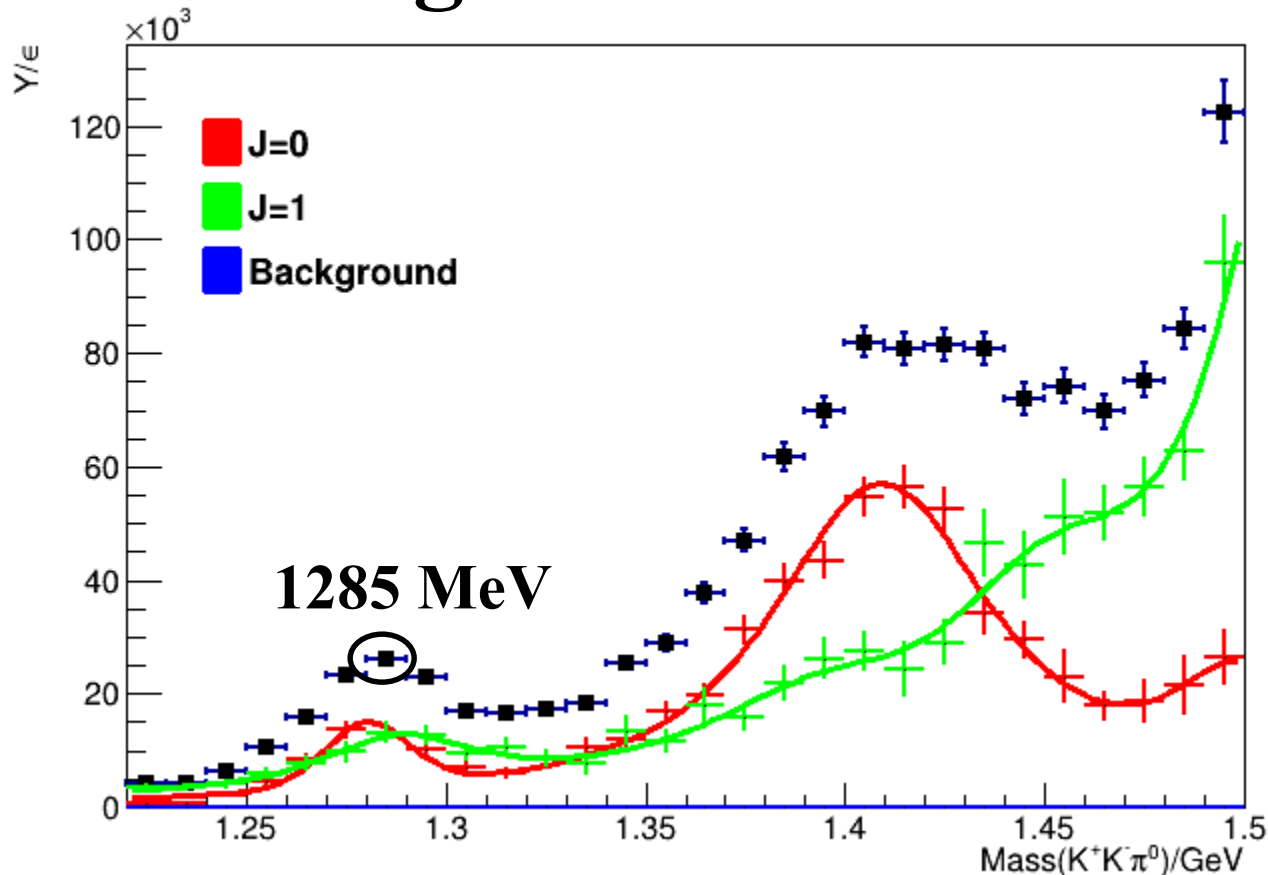
# Mass-independent PWA of $KK\pi$

Included:

- $J=0^-$ 
  - $(K^+K^-)_{S\text{-phsp}}\pi^0$
  - $(K^+\pi^0)_{P\text{-phsp}}K^-$
  - $(K^-\pi^0)_{P\text{-phsp}}K^+$
- $J=1^+$ 
  - $(K^+K^-)_{S\text{-phsp}}\pi^0$
  - $(K^+\pi^0)_{P\text{-phsp}}K^-$
  - $(K^-\pi^0)_{P\text{-phsp}}K^+$
- $J=1^-$ 
  - $(K^+\pi^0)_{P\text{-phsp}}K^-$
  - $(K^-\pi^0)_{P\text{-phsp}}K^+$

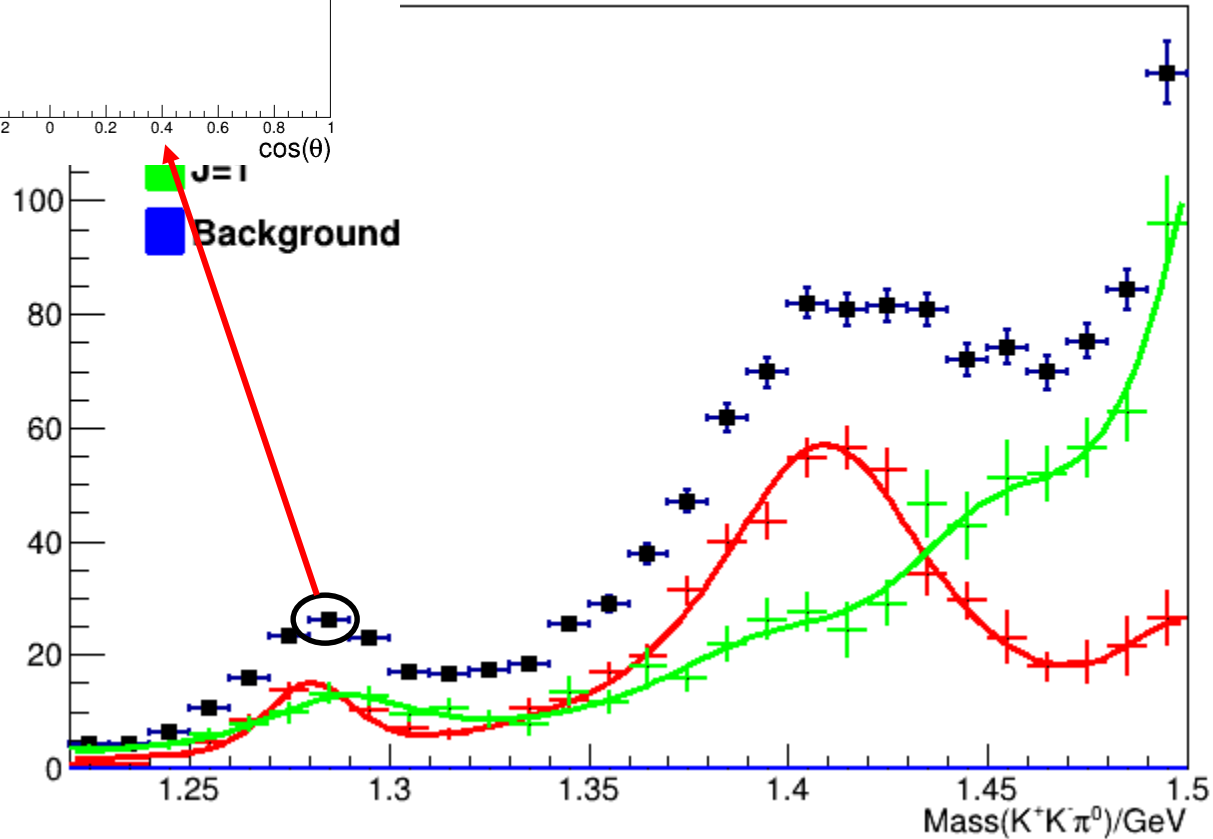
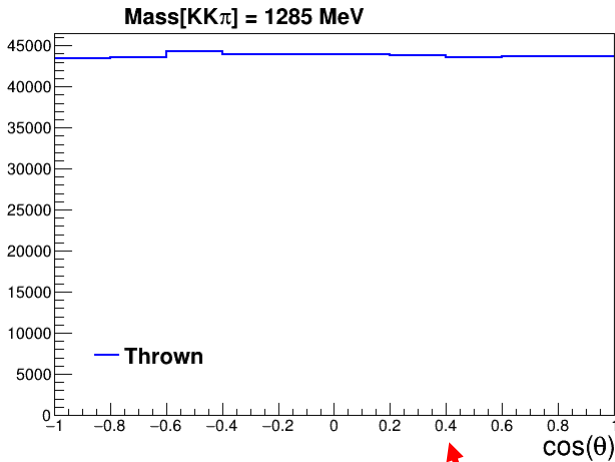
# PWA Results for $J = 0, 1$ and background

## Angular fit results

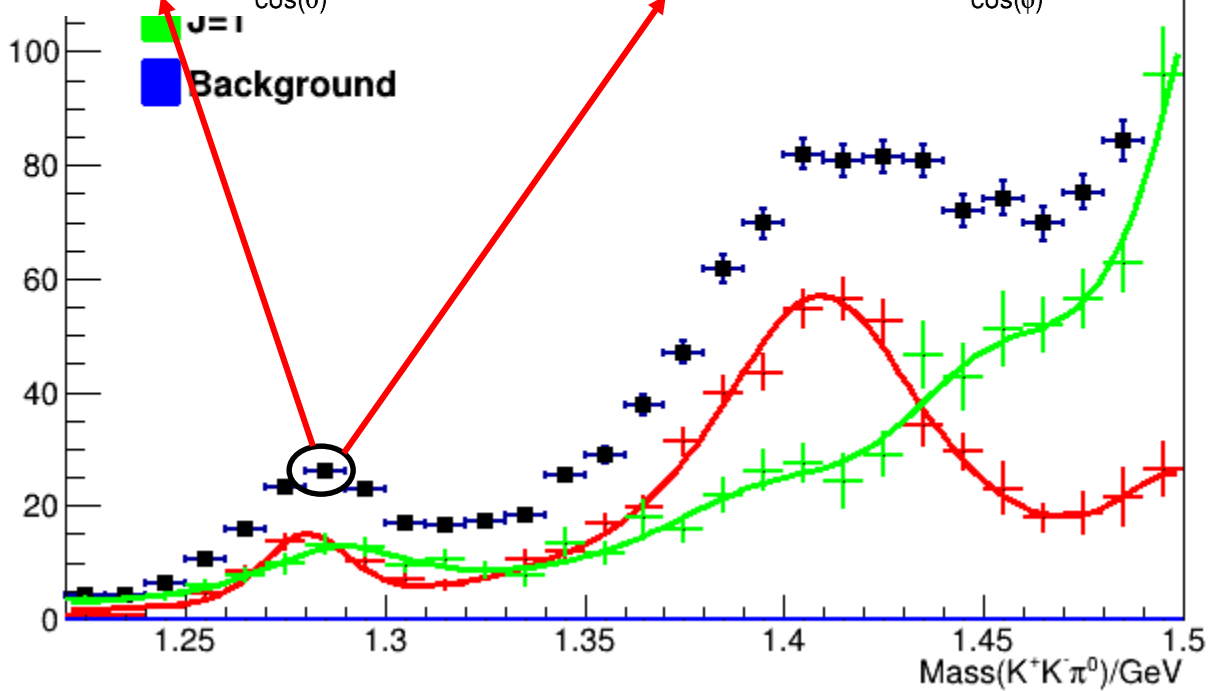
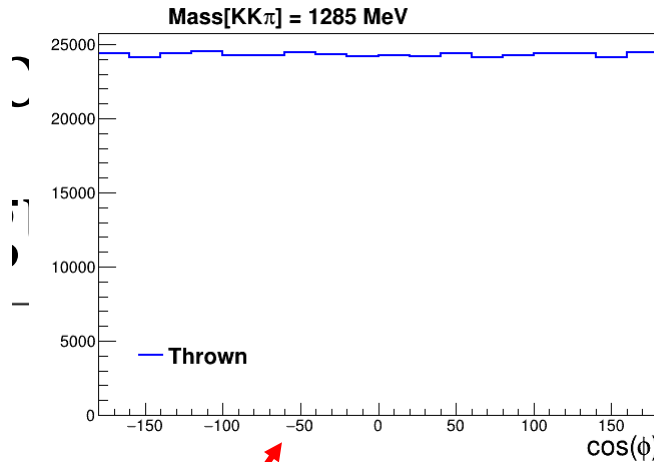
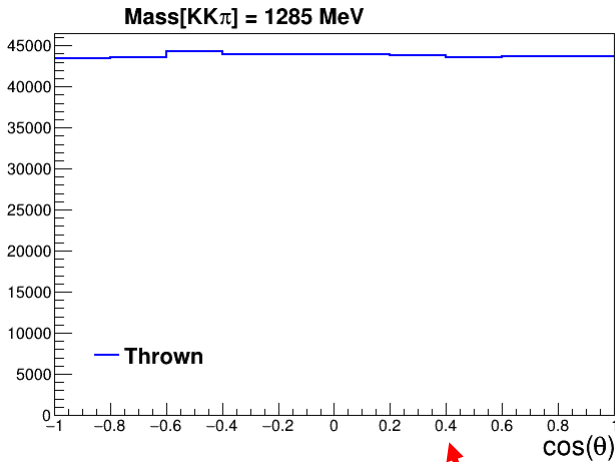




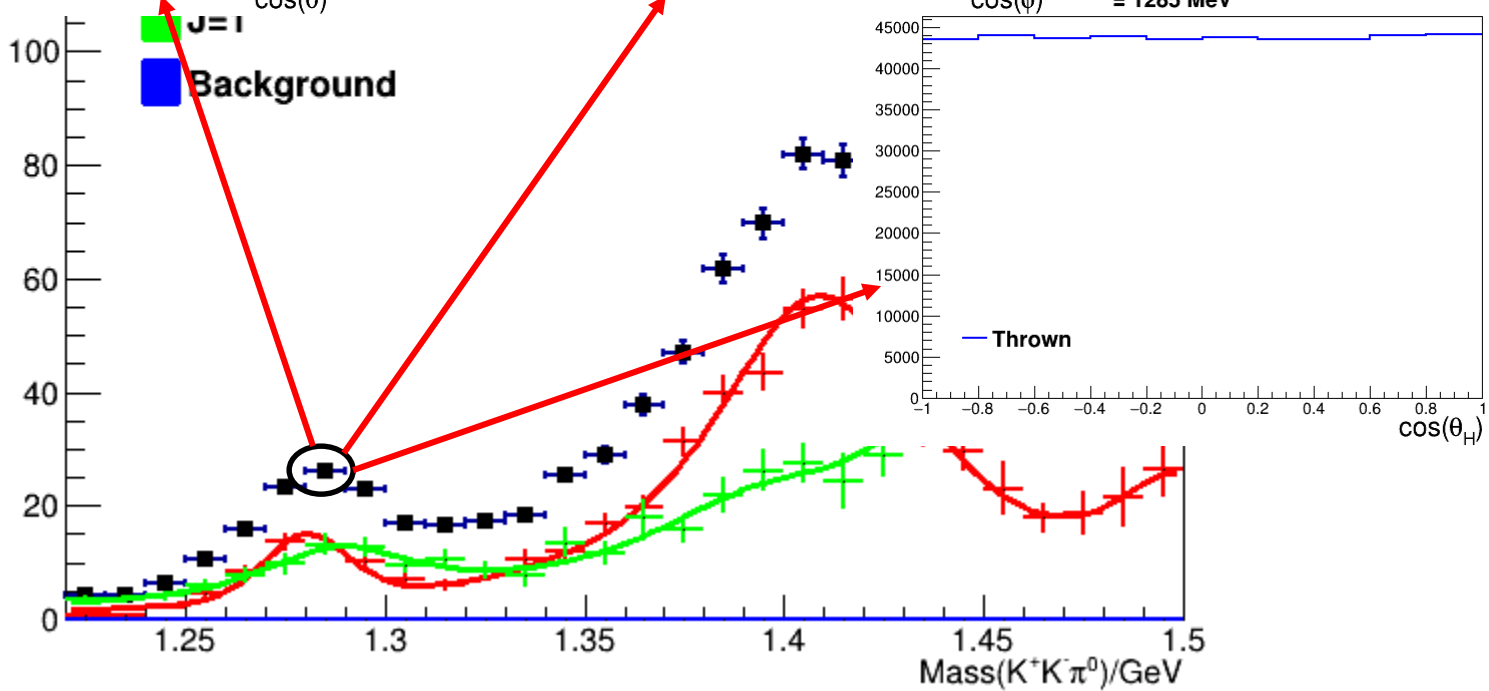
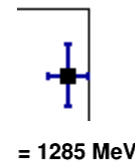
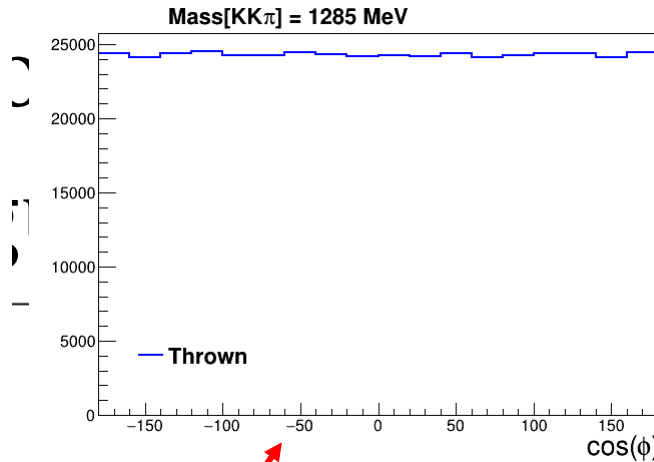
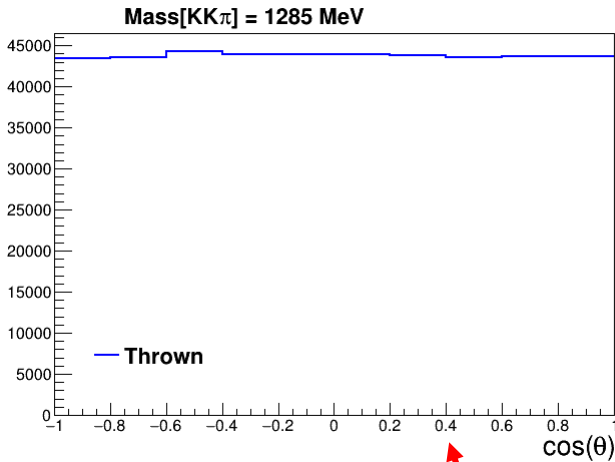
# for $J = 0, 1$ and background angular fit results



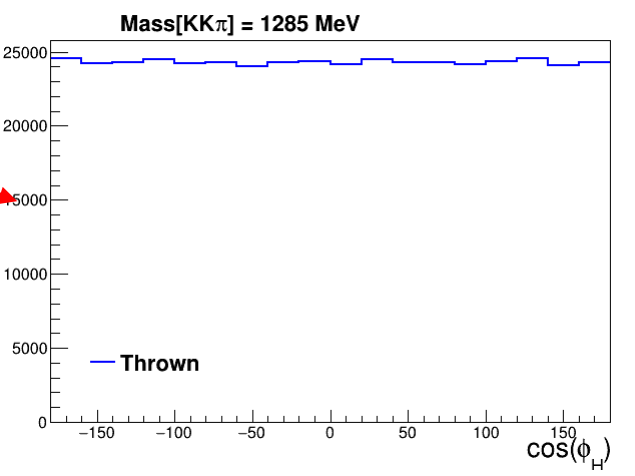
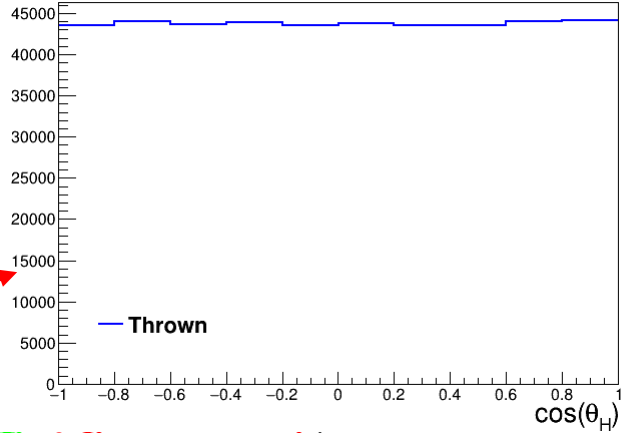
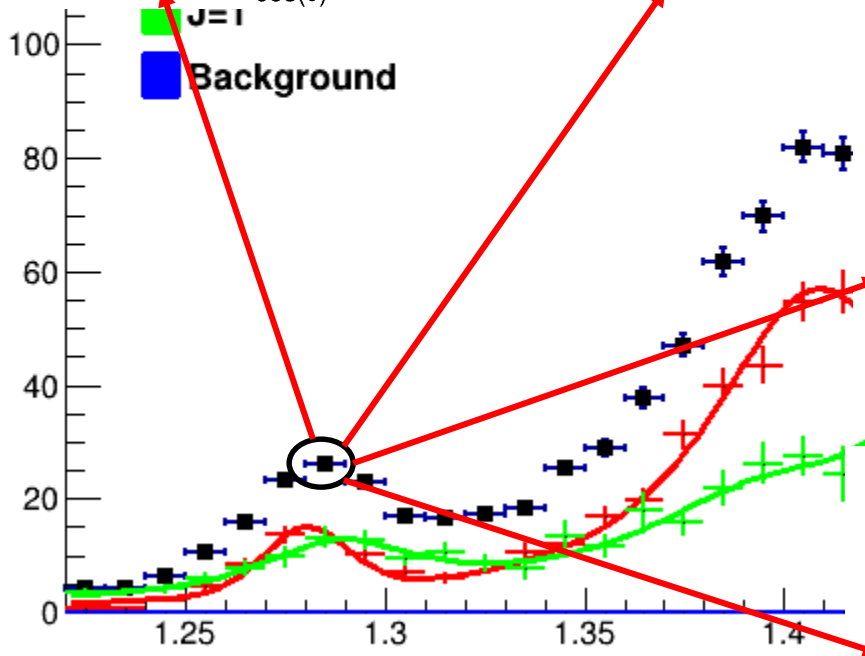
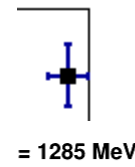
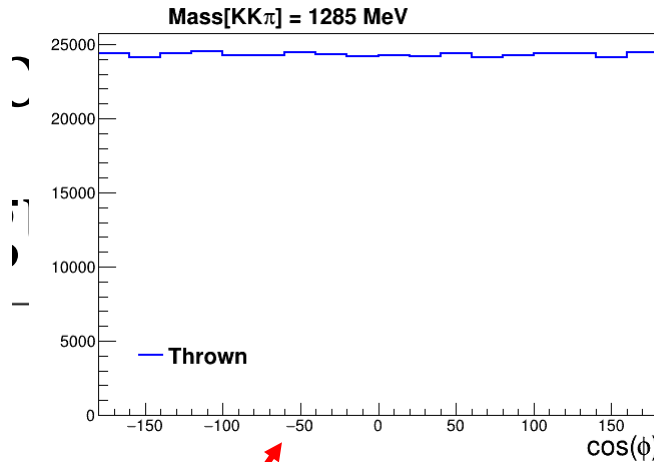
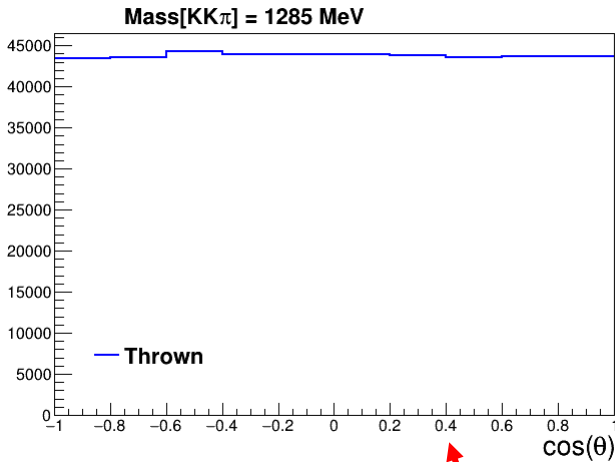
# ckground



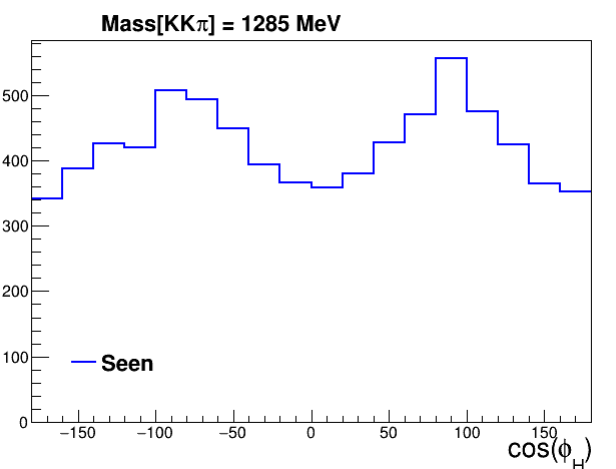
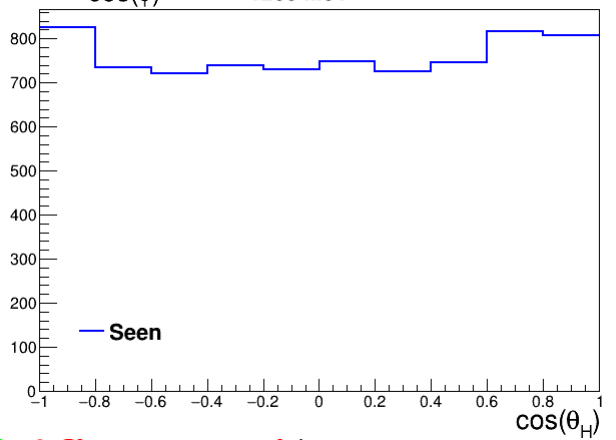
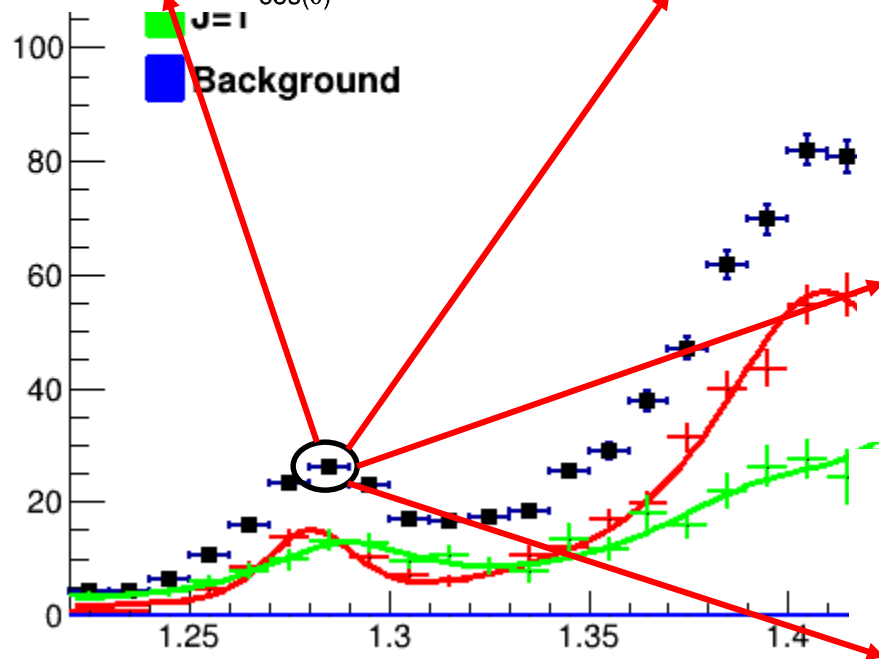
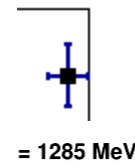
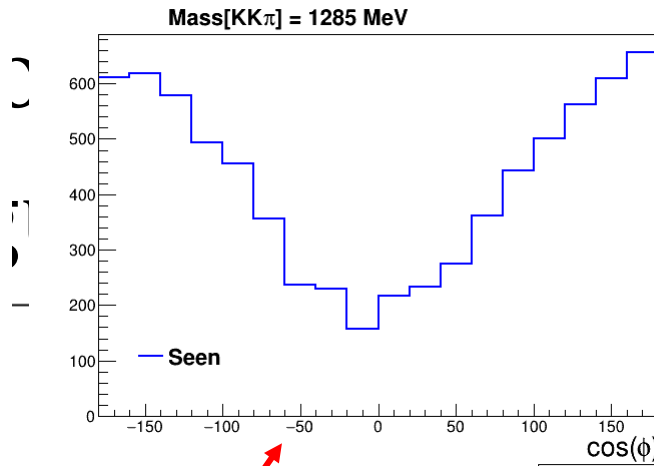
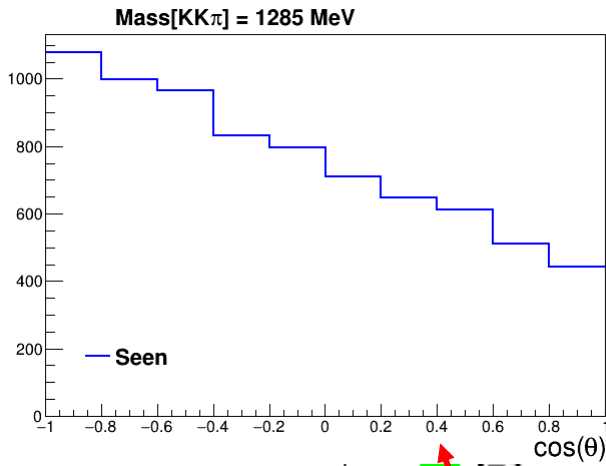
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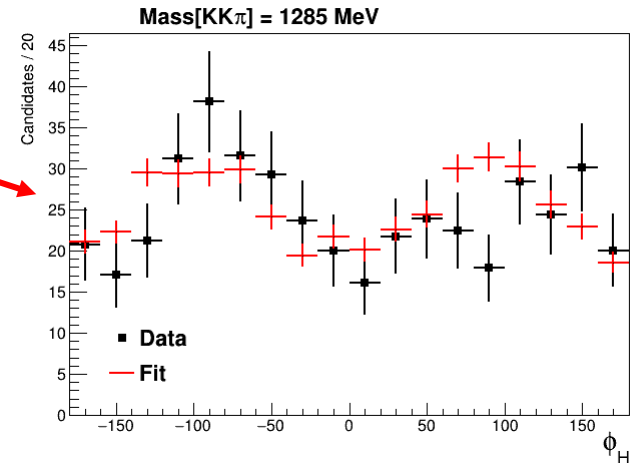
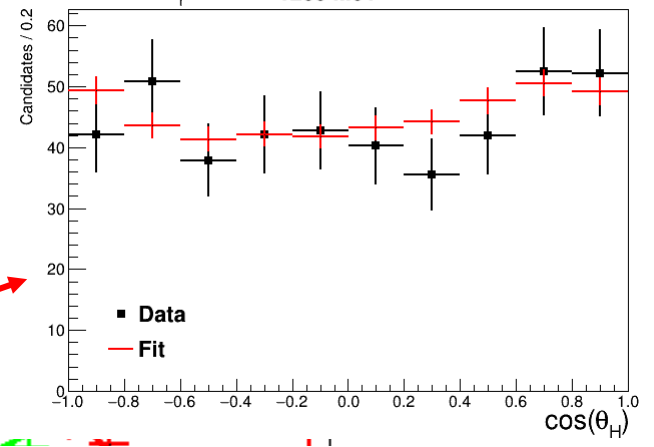
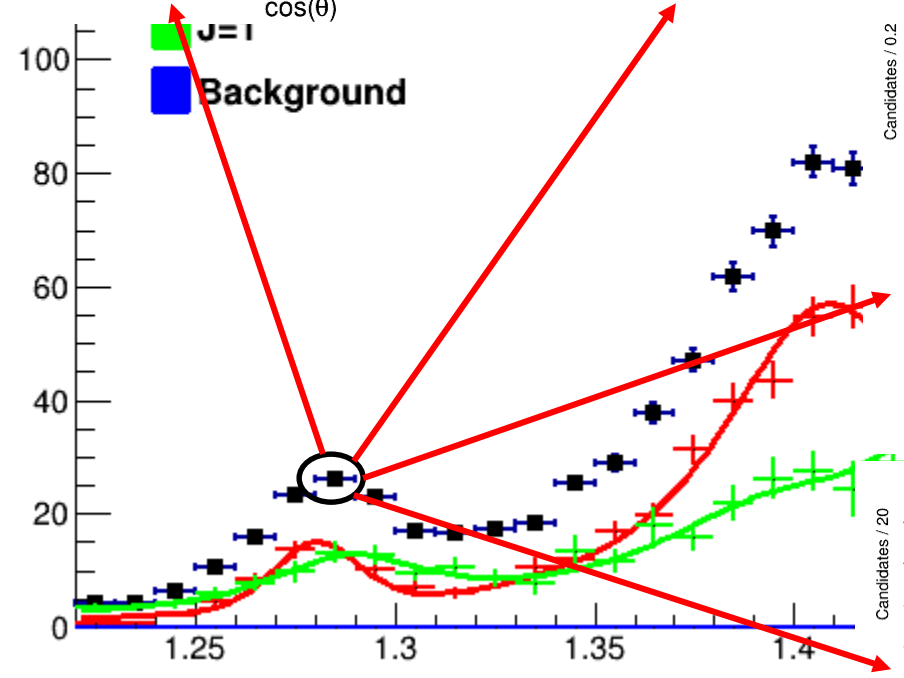
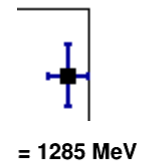
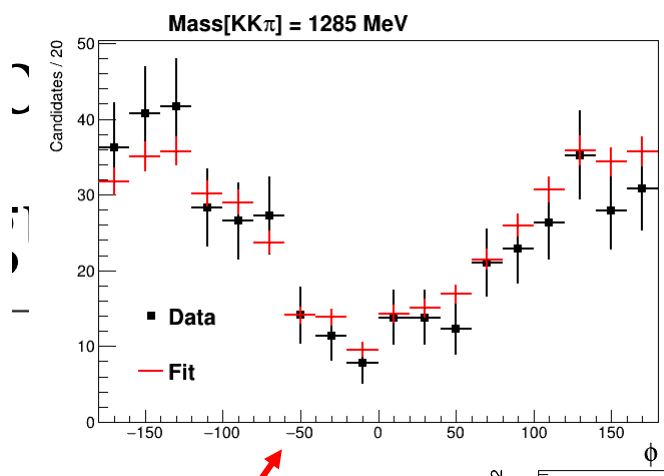
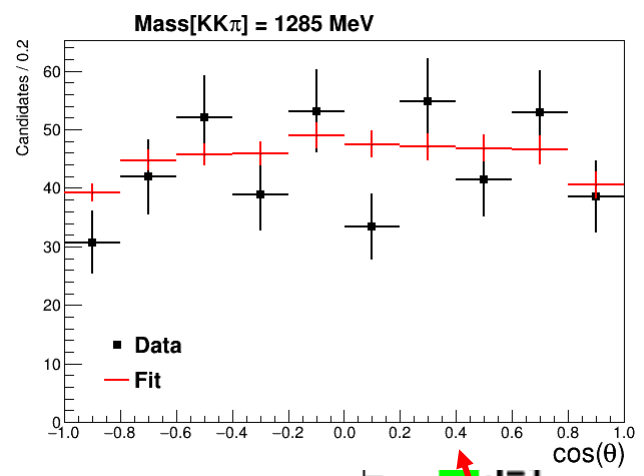
# ckground



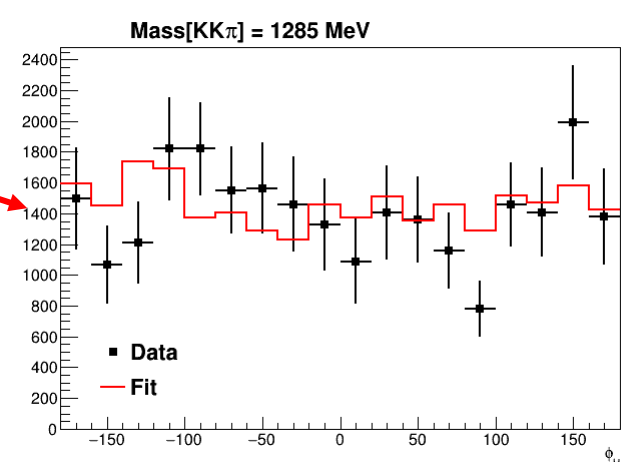
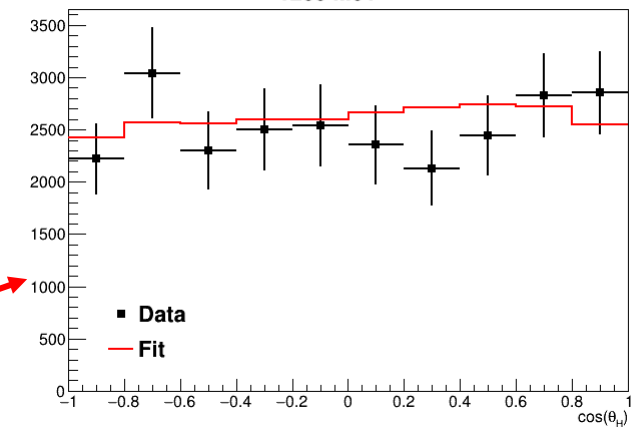
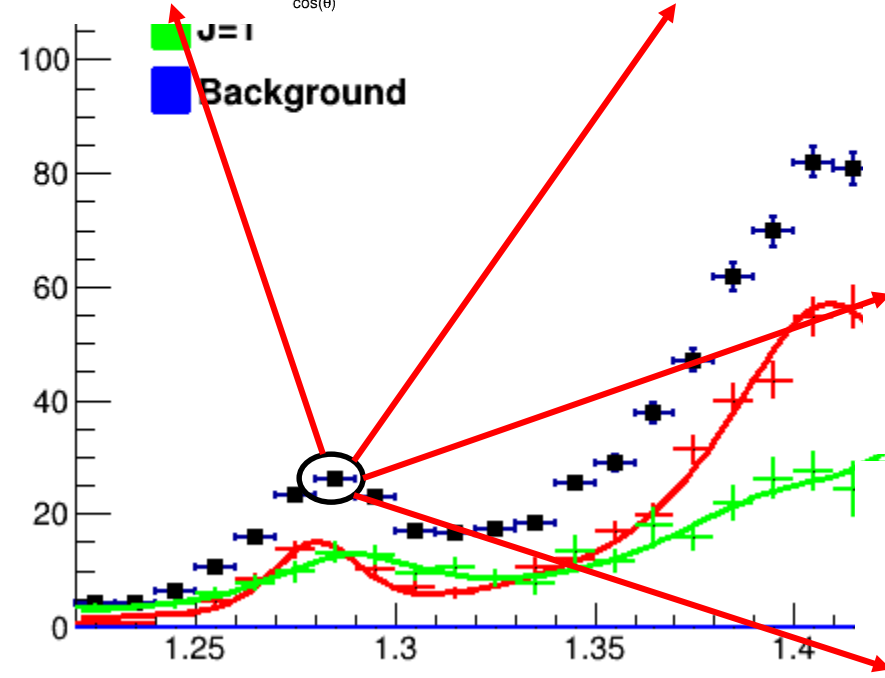
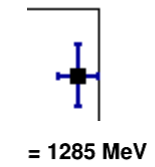
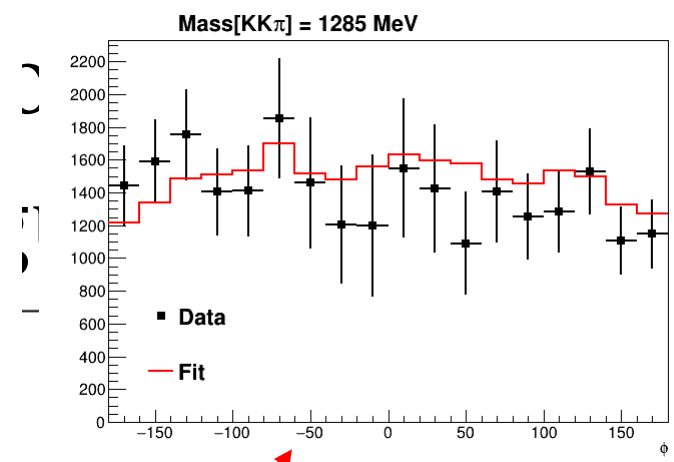
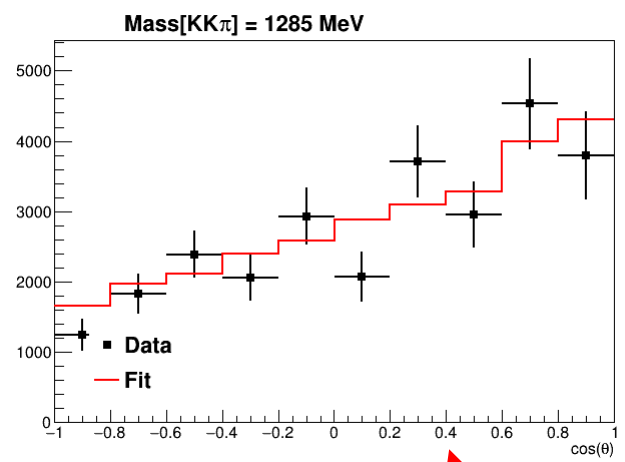
# ckground



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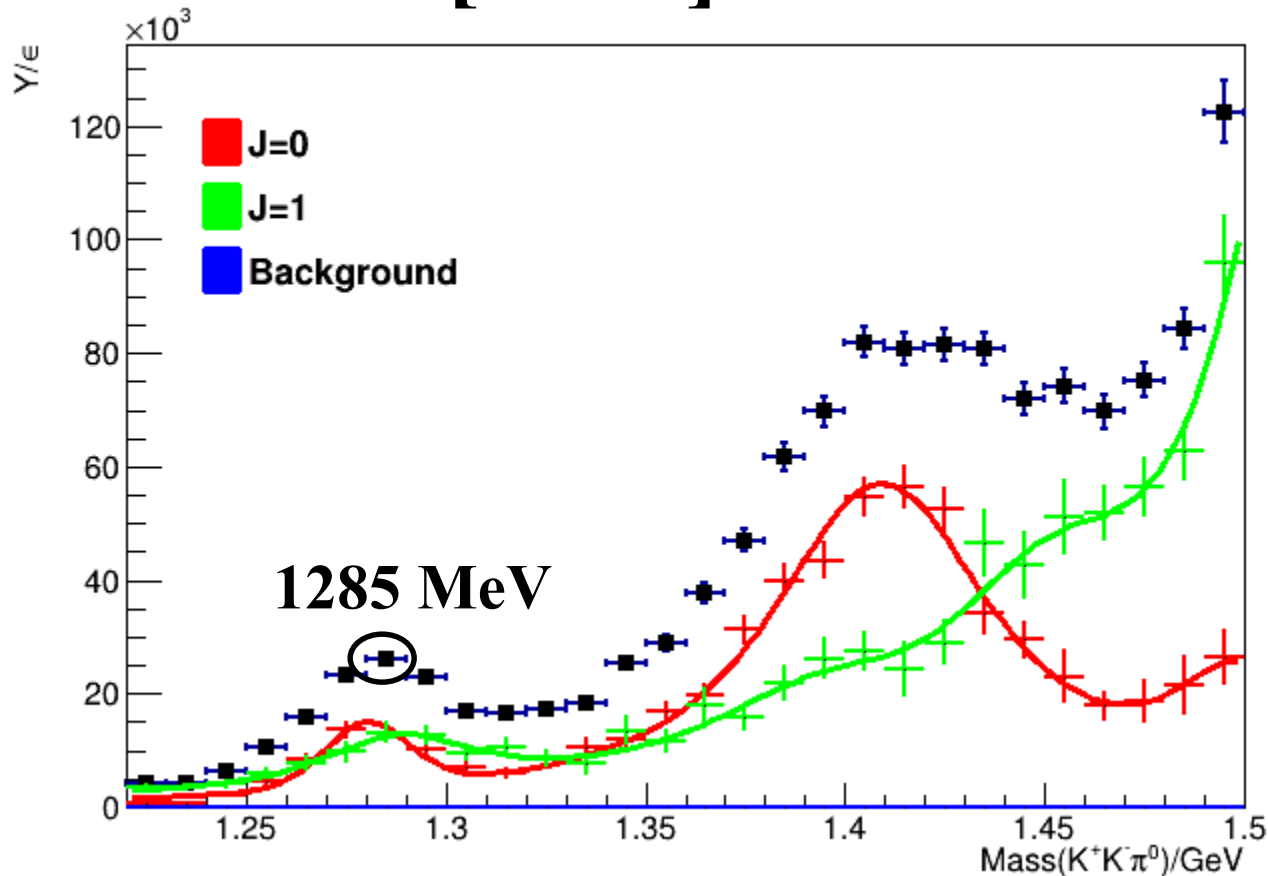


Efficiency Corrected



# PWA Results for $J = 0, 1$ and background

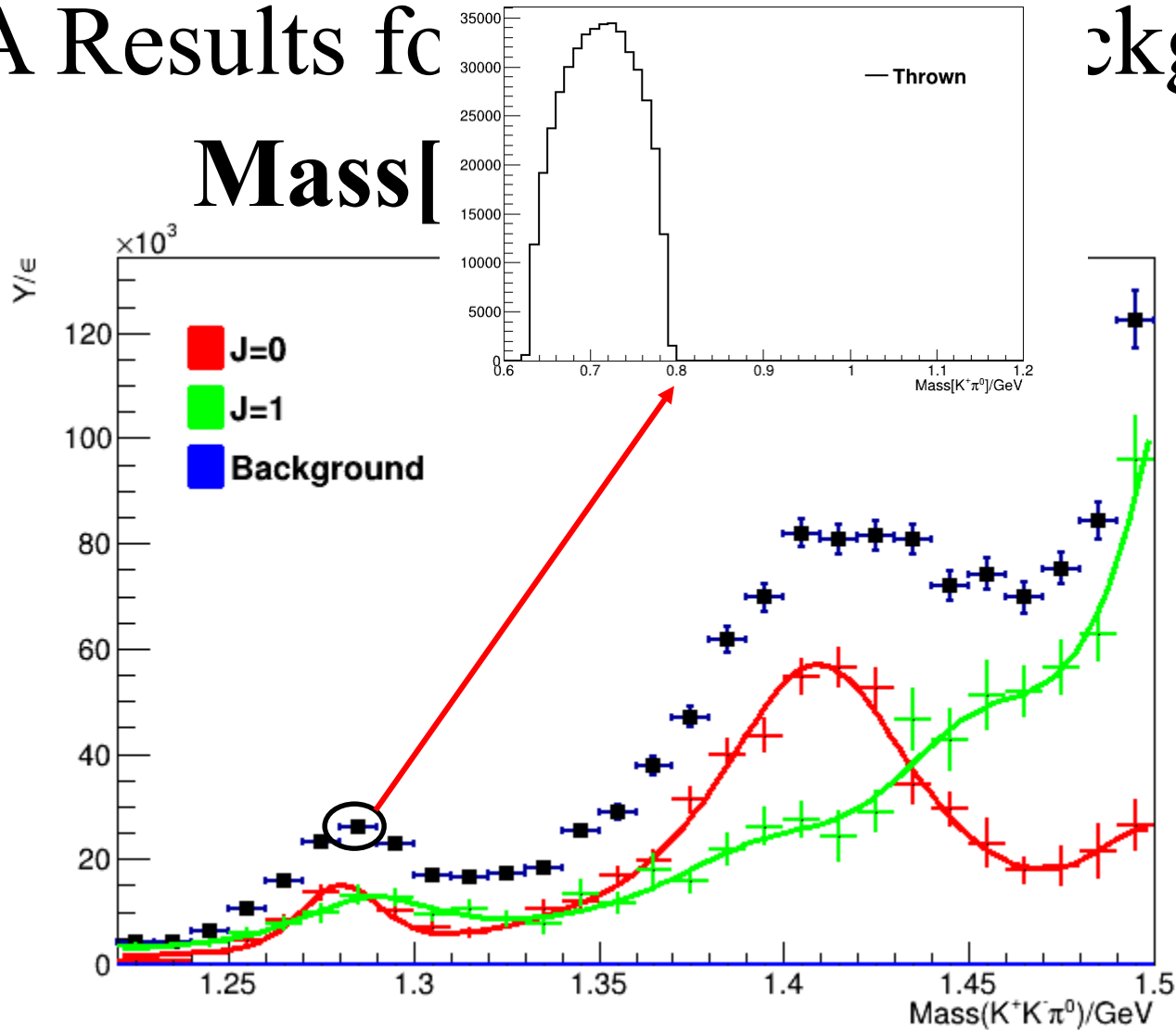
## Mass[ $K^+\pi^0$ ] fit results





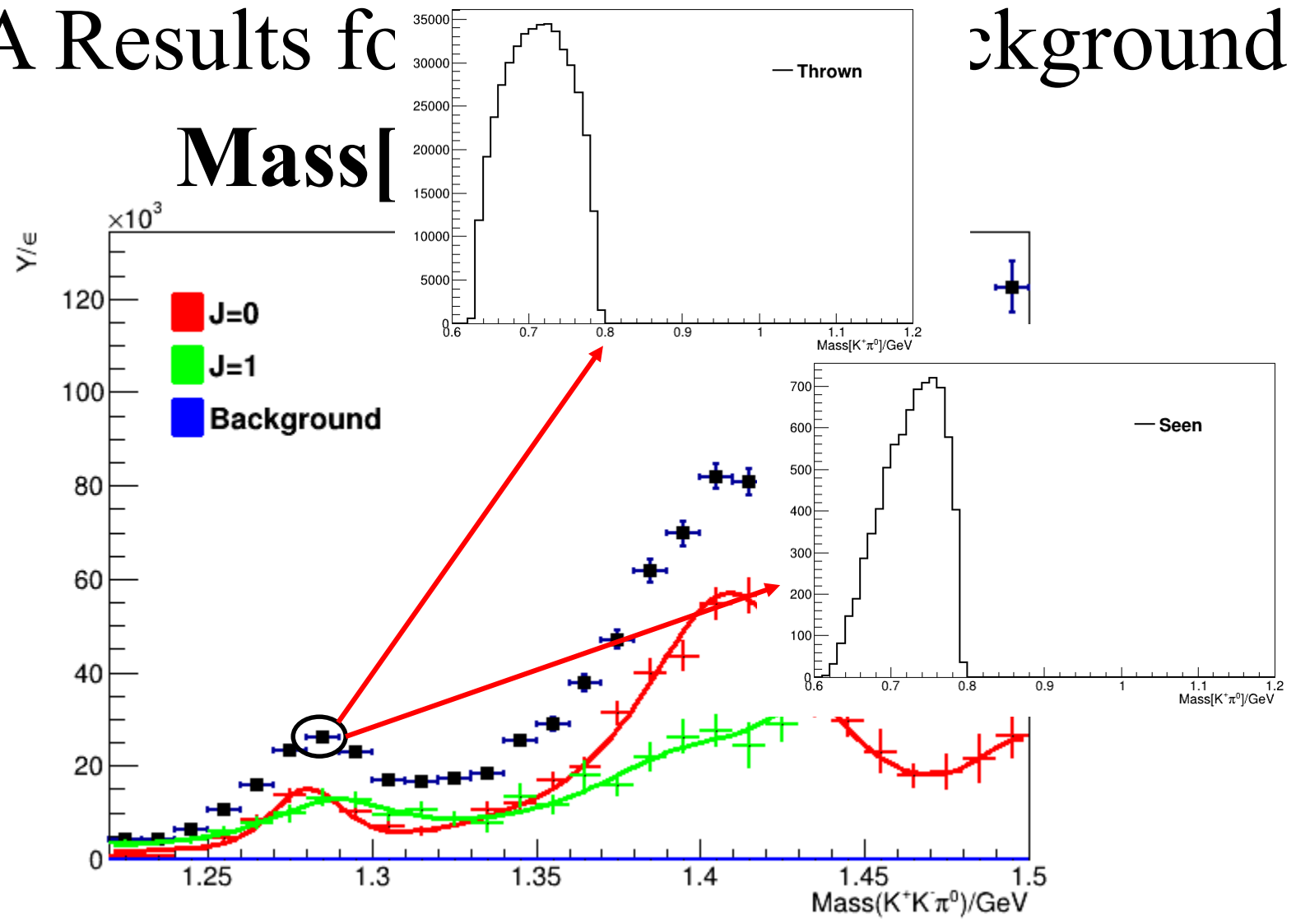
# PWA Results for $f_0(1370)$

background



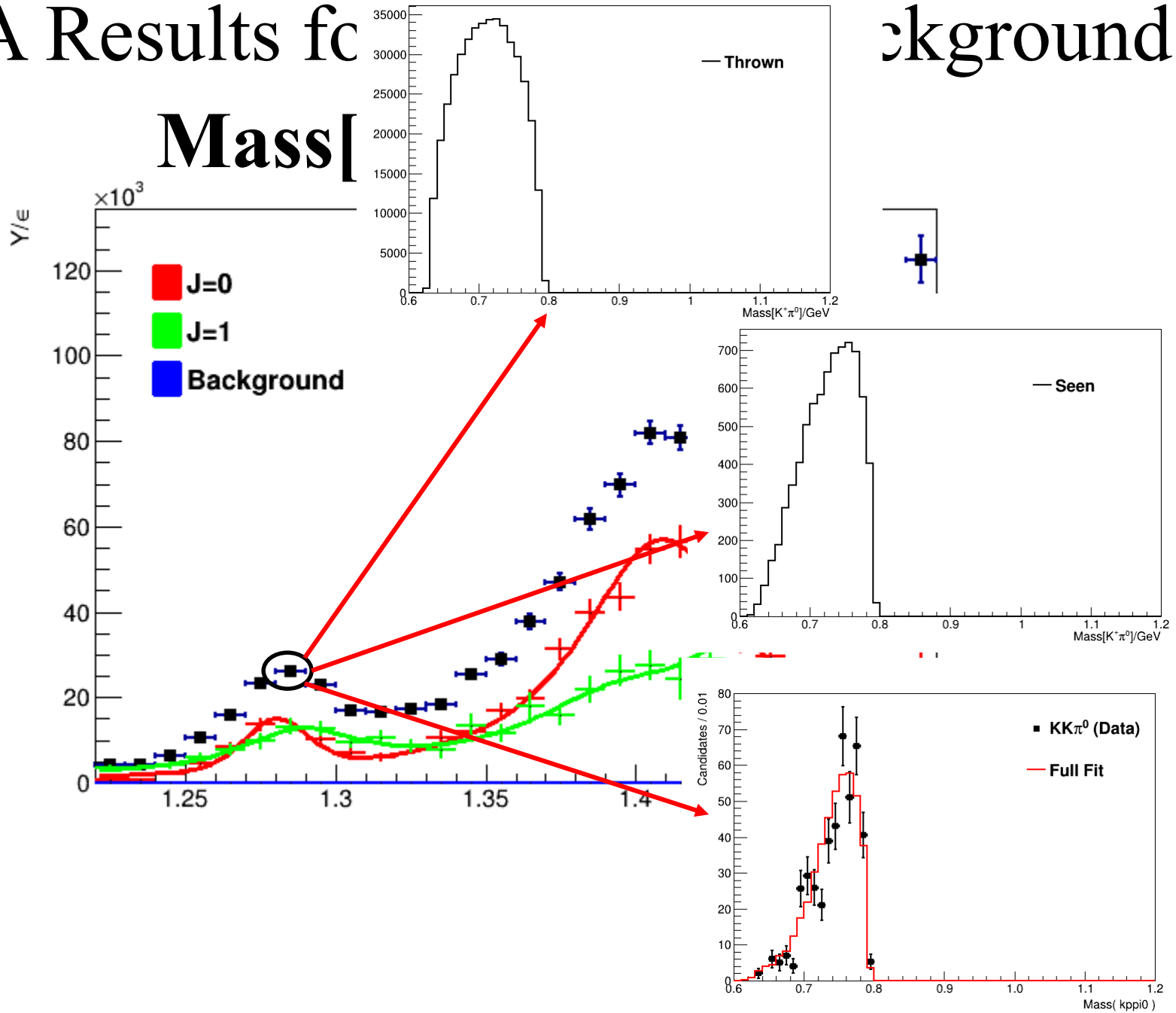
# PWA Results for $f_0(1370)$ $\rightarrow$ $K^+K^-\pi^0$

# Background



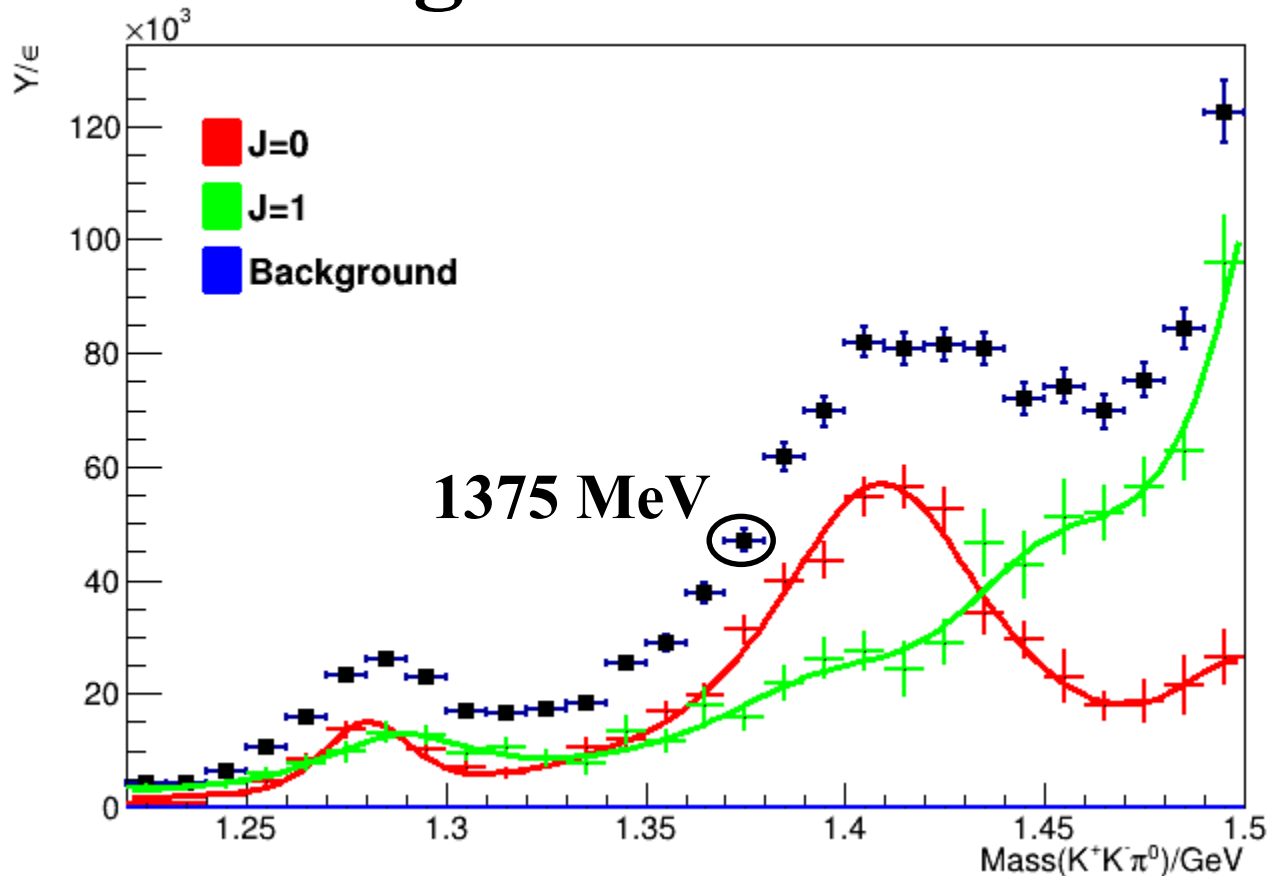
# PWA Results for $f_0(1370)$ $\rightarrow$ $K^+ \pi^-$

# Background

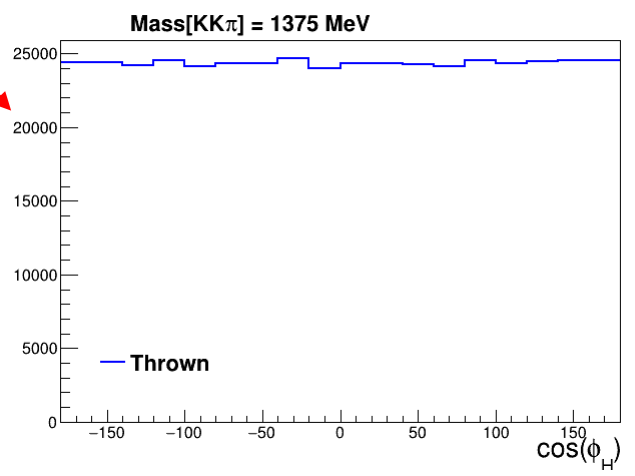
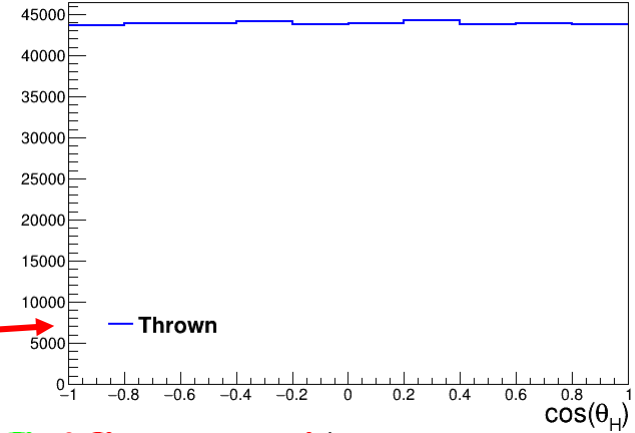
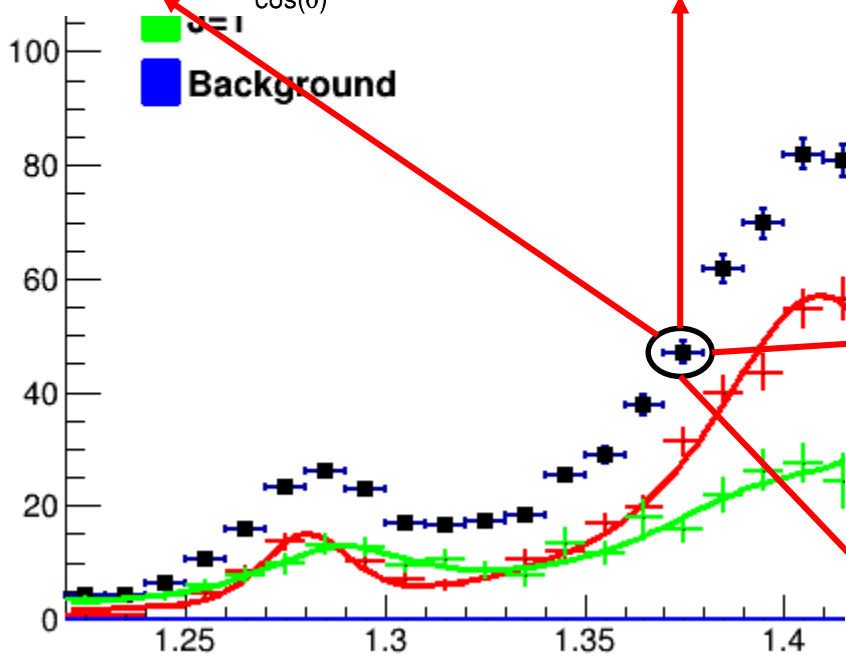
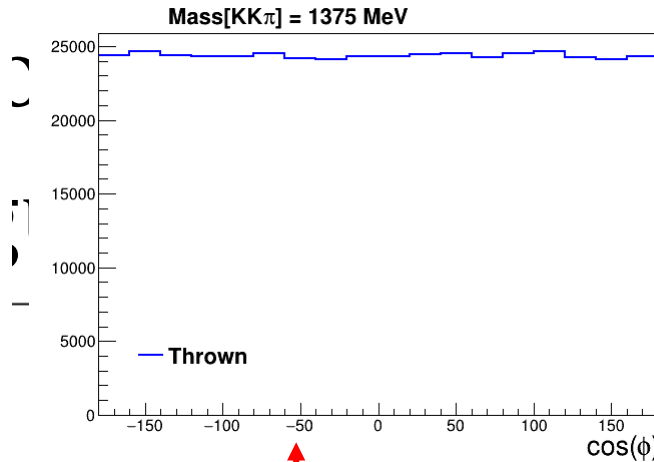
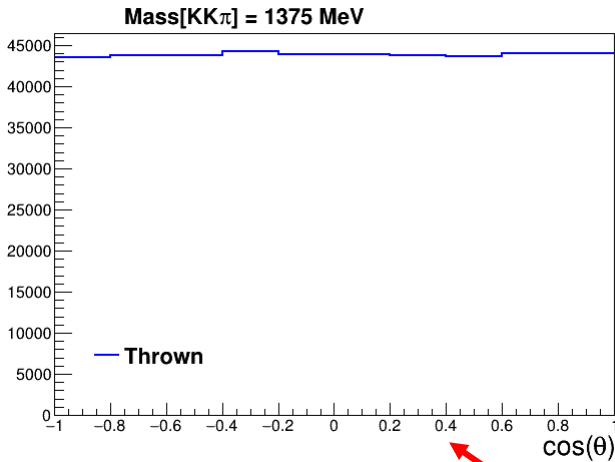


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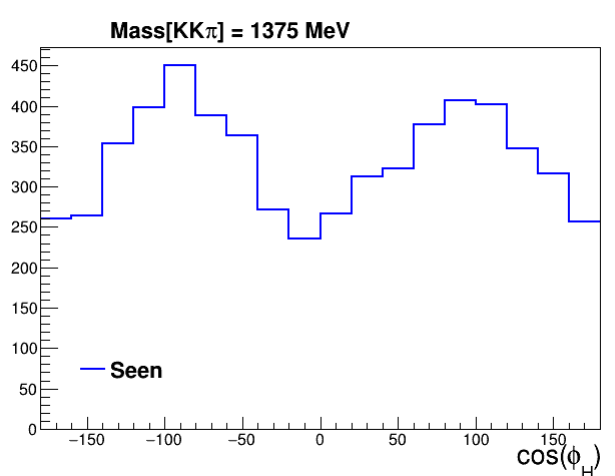
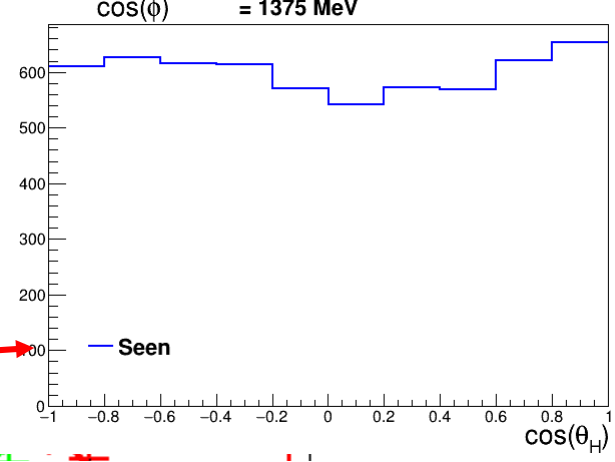
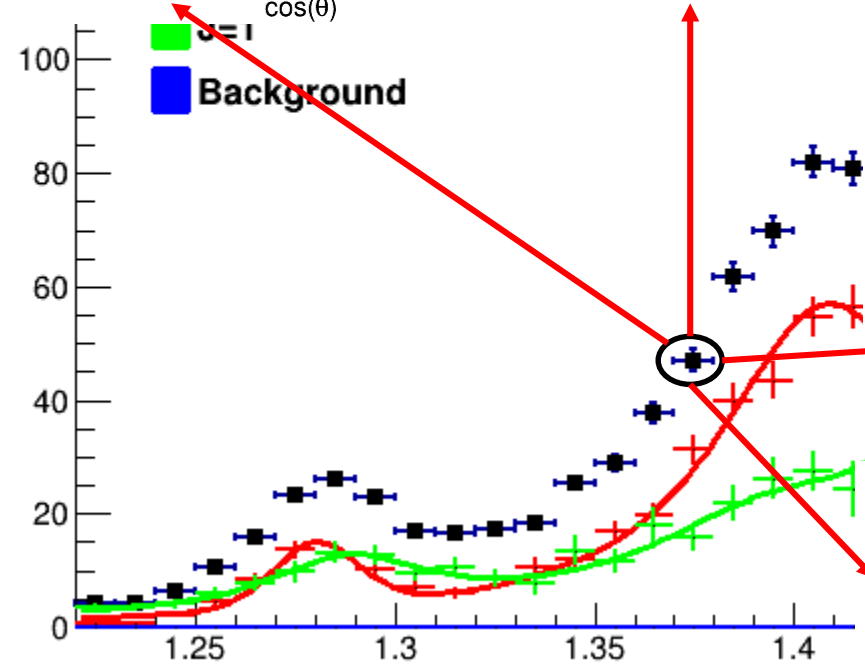
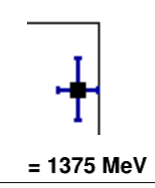
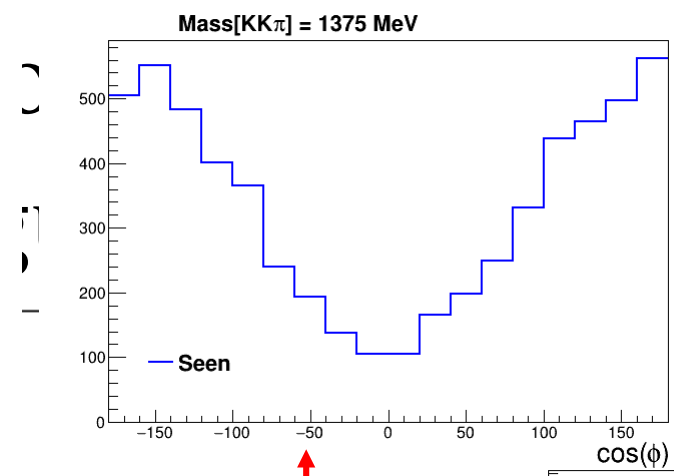
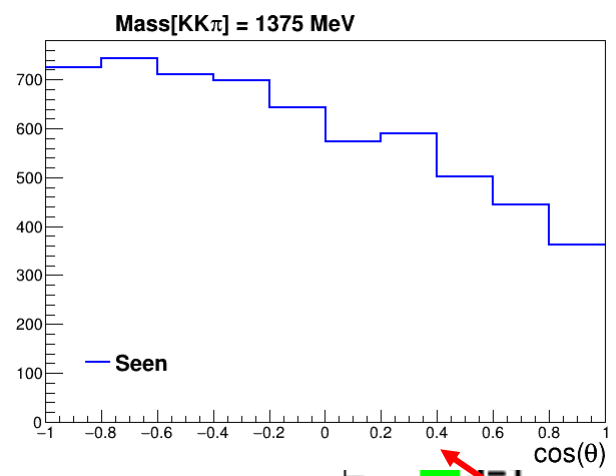
## Angular fit results



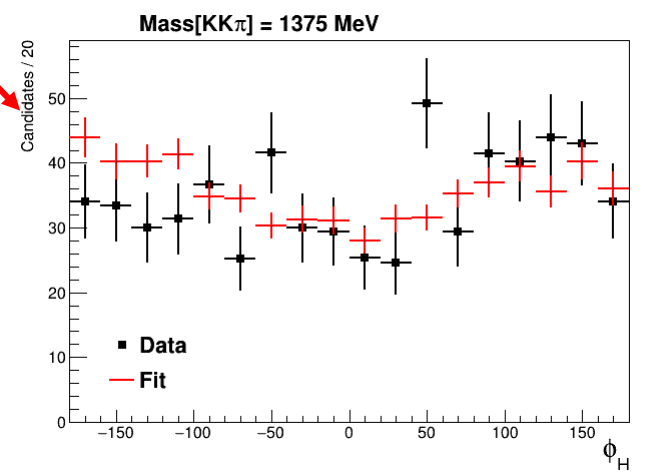
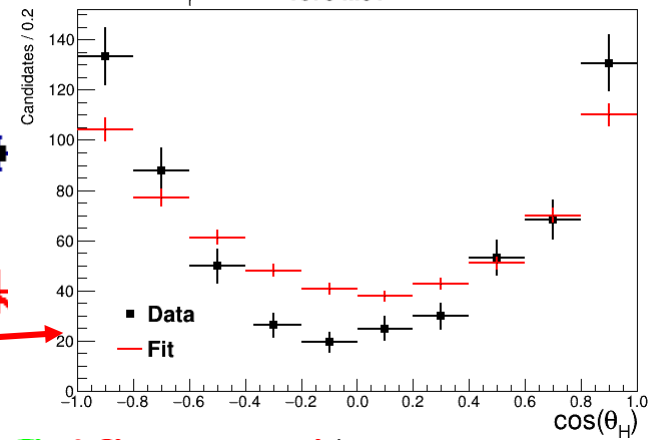
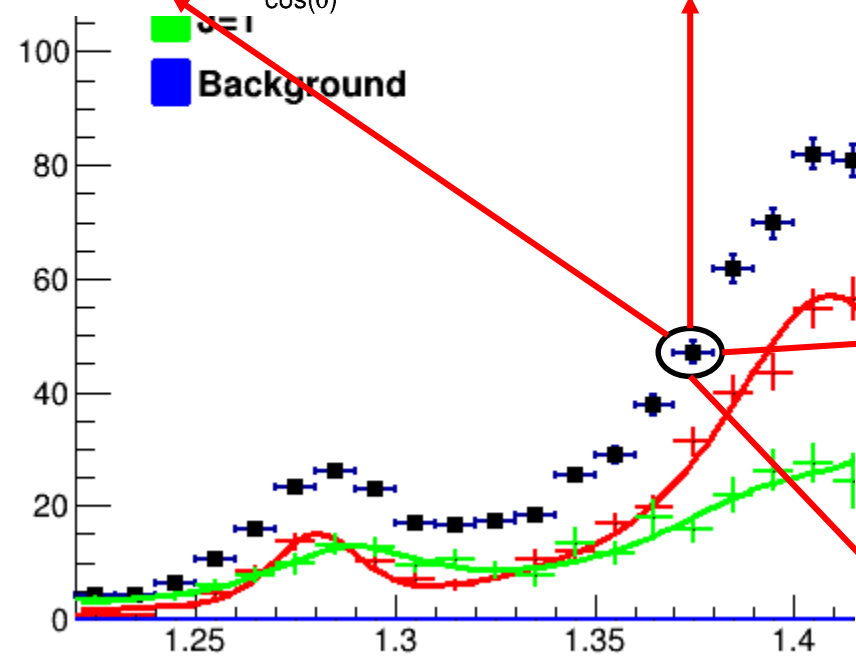
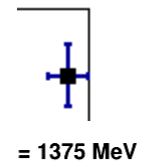
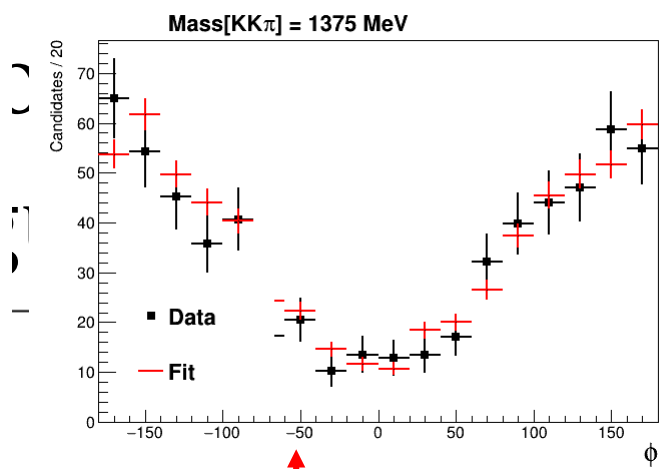
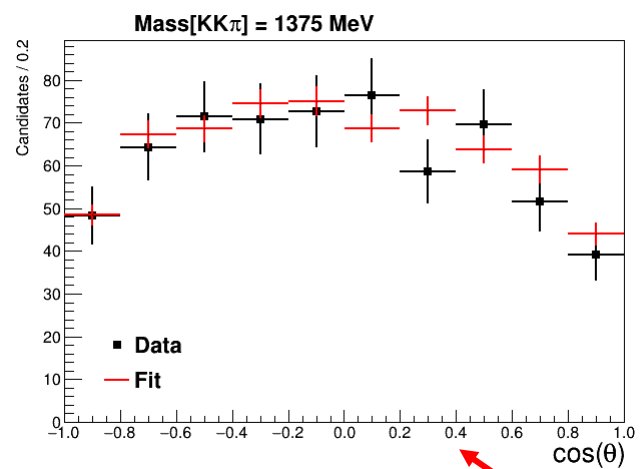
# ckground



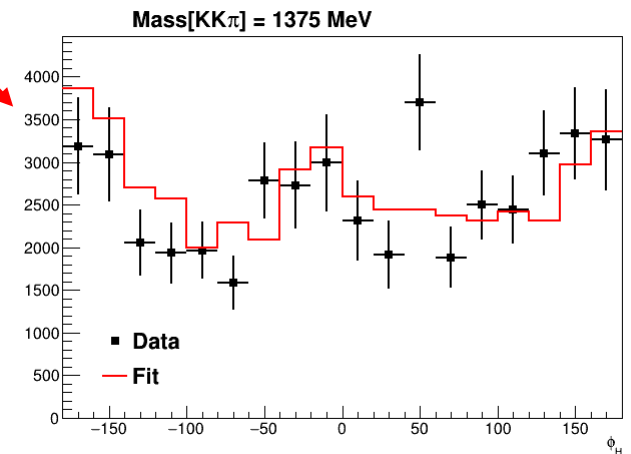
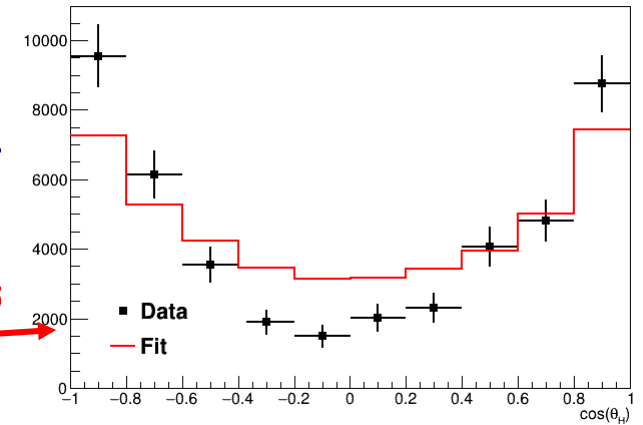
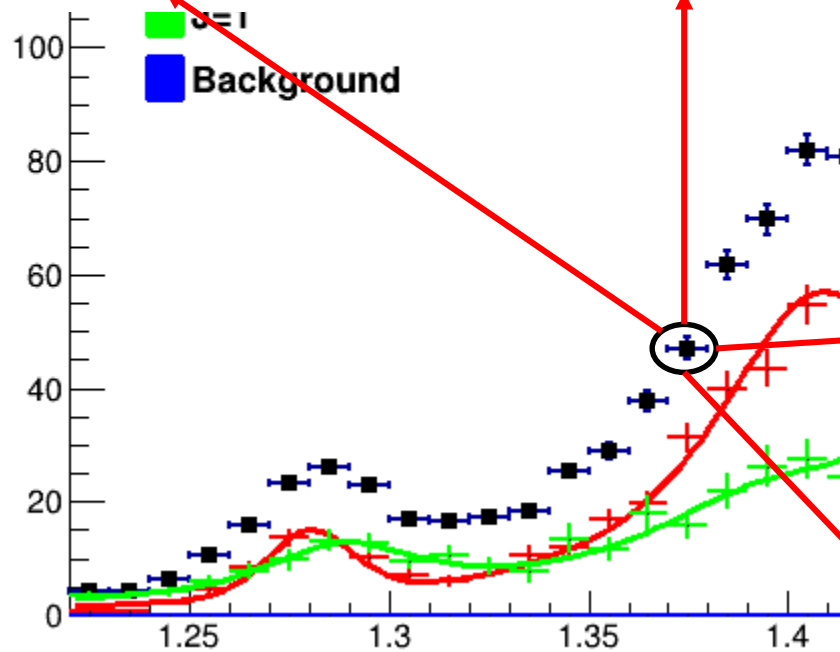
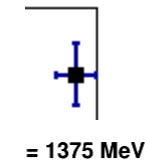
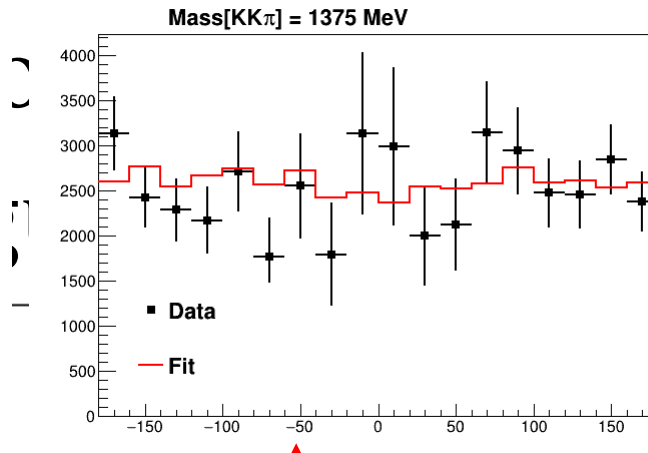
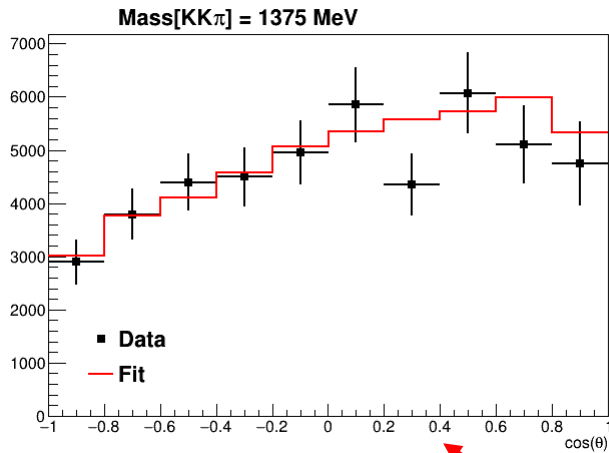
# ckground



# ckground



# ckground



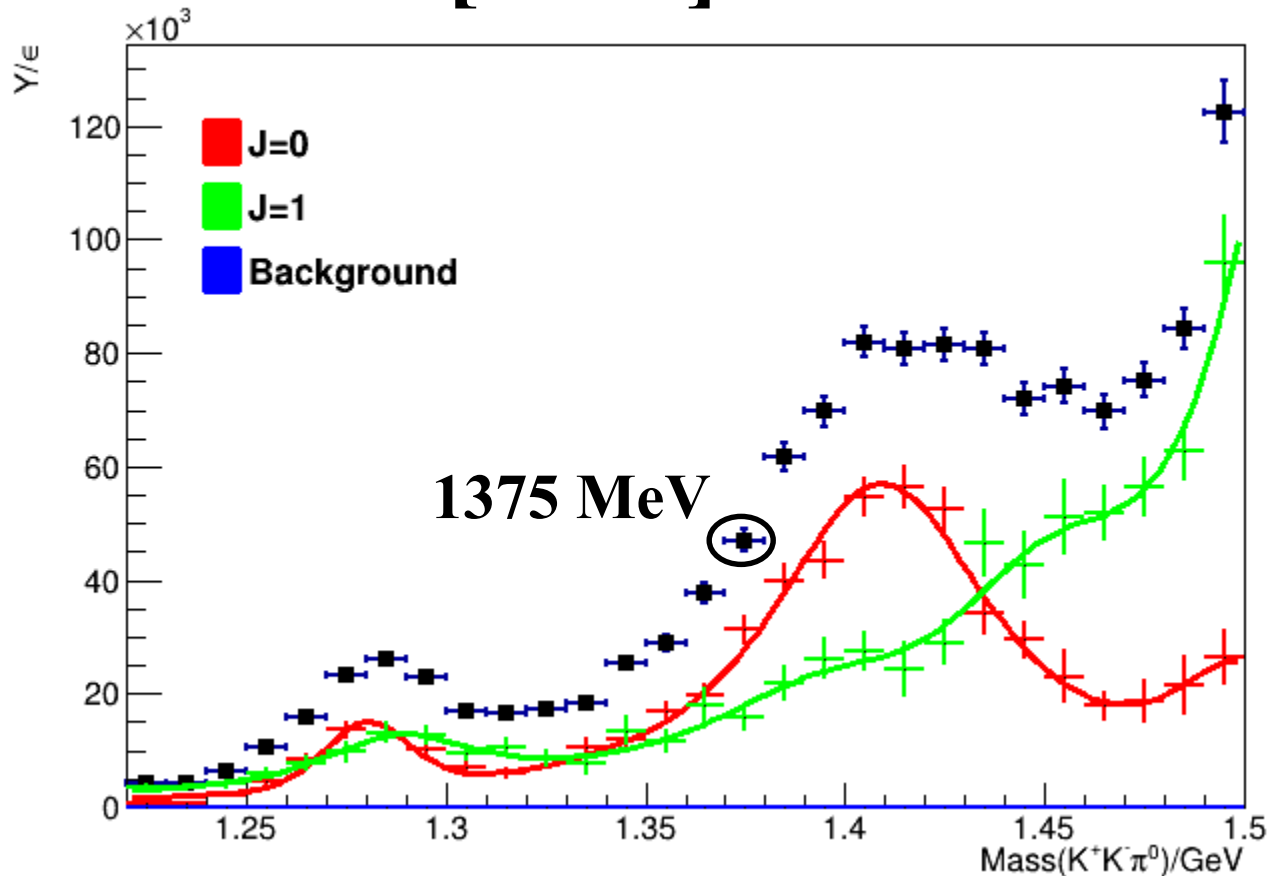
Efficiency Corrected





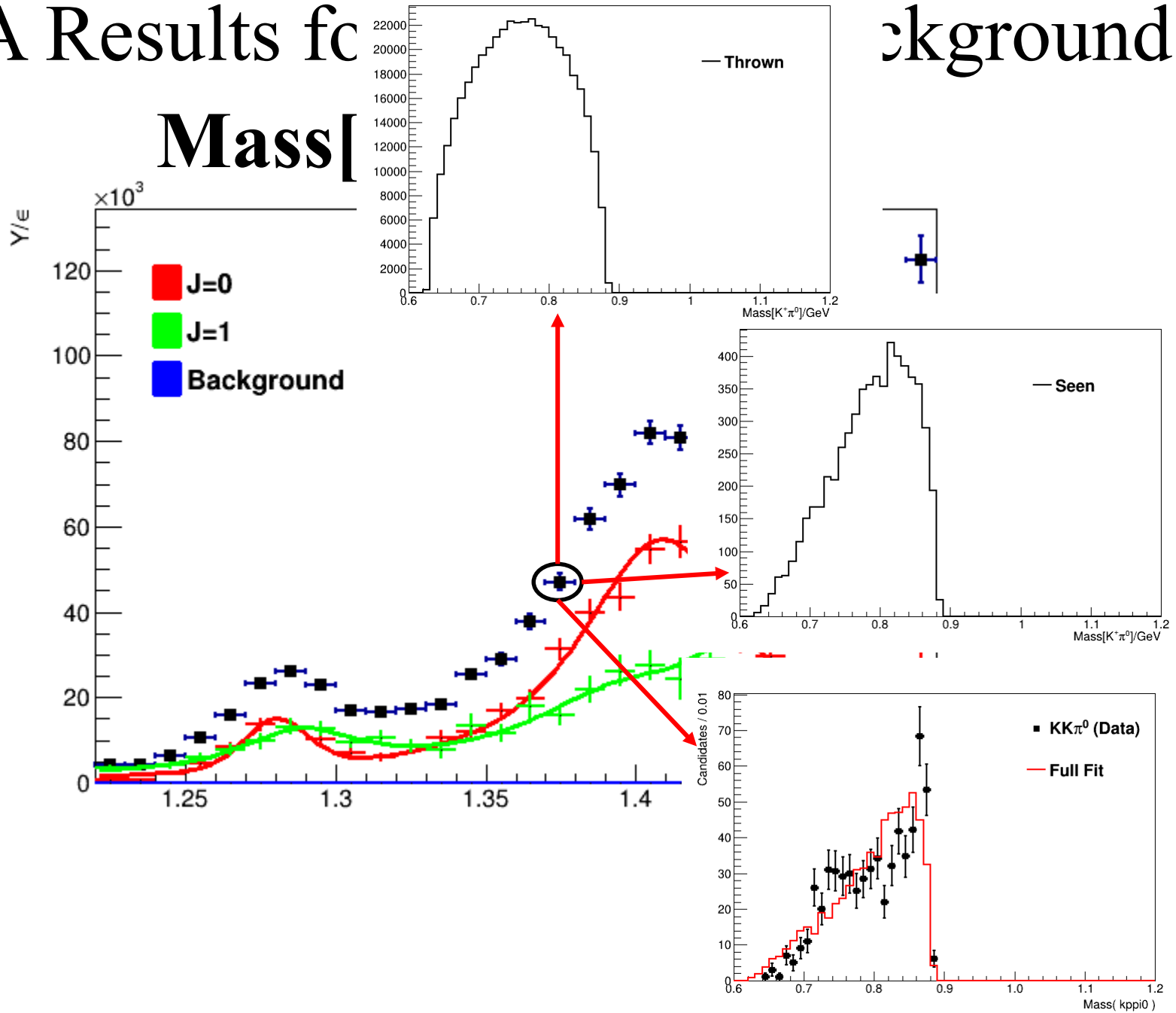
# PWA Results for $J = 0, 1$ and background

## Mass[ $K^+\pi^0$ ] fit results



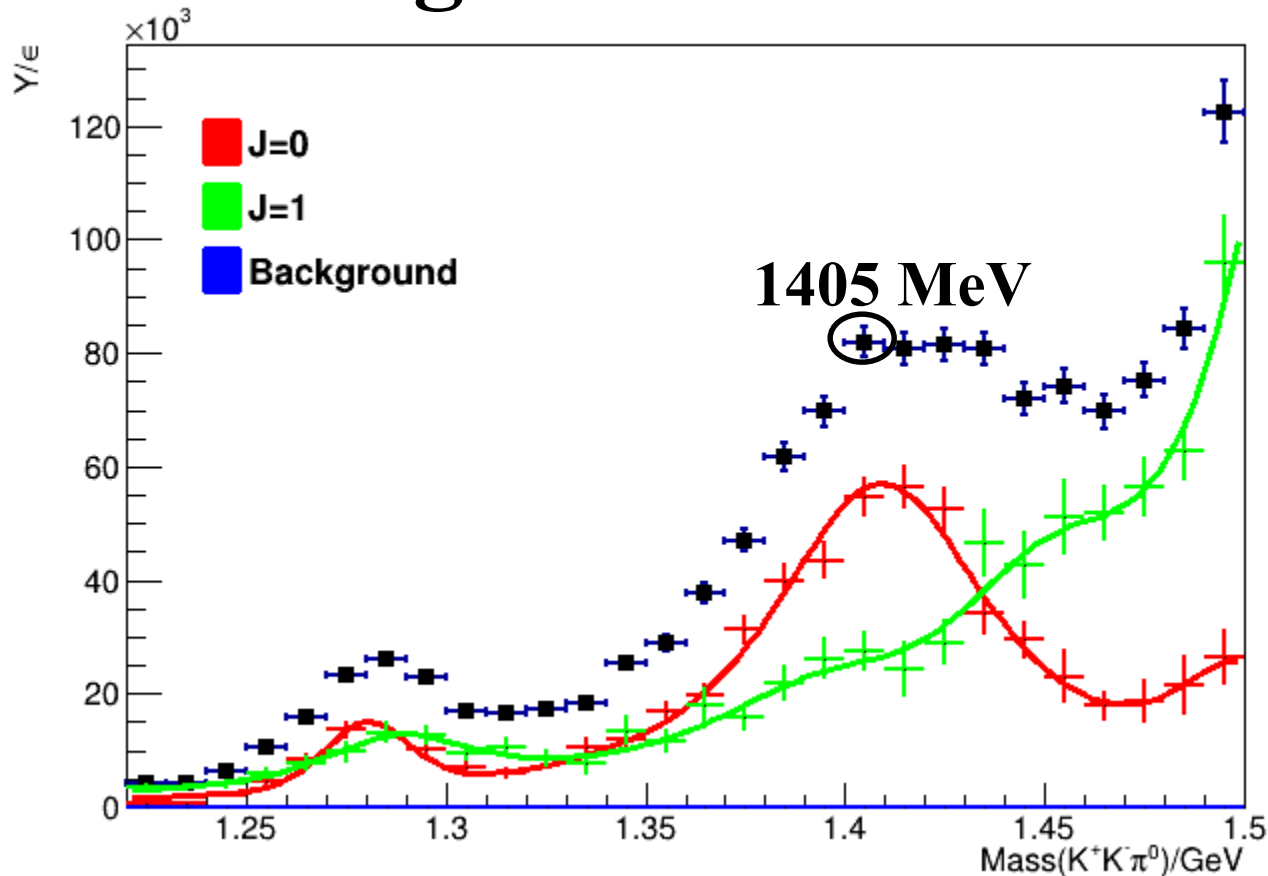
# PWA Results for $f_0(1370)$

background

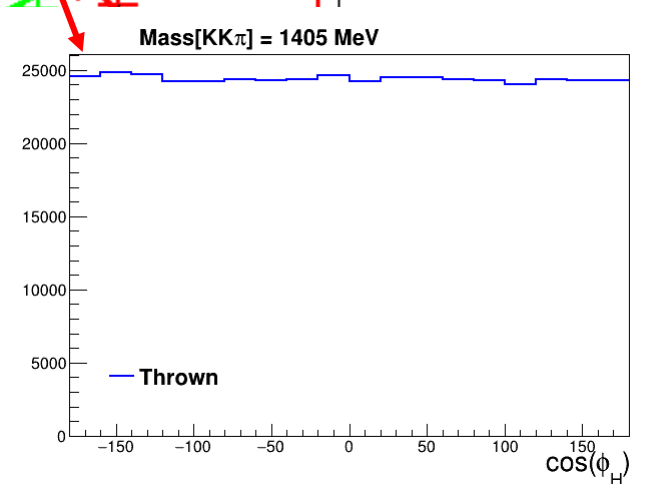
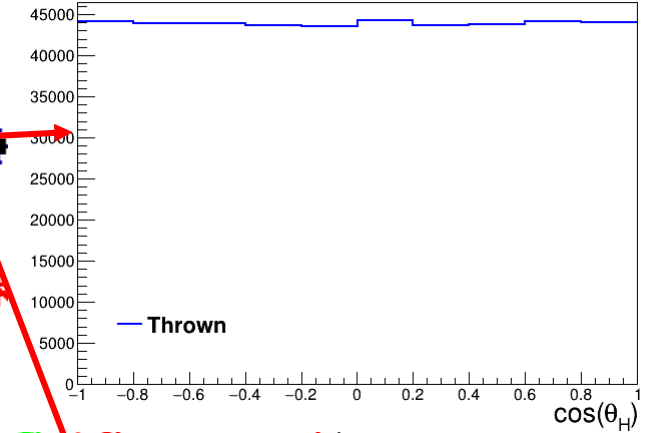
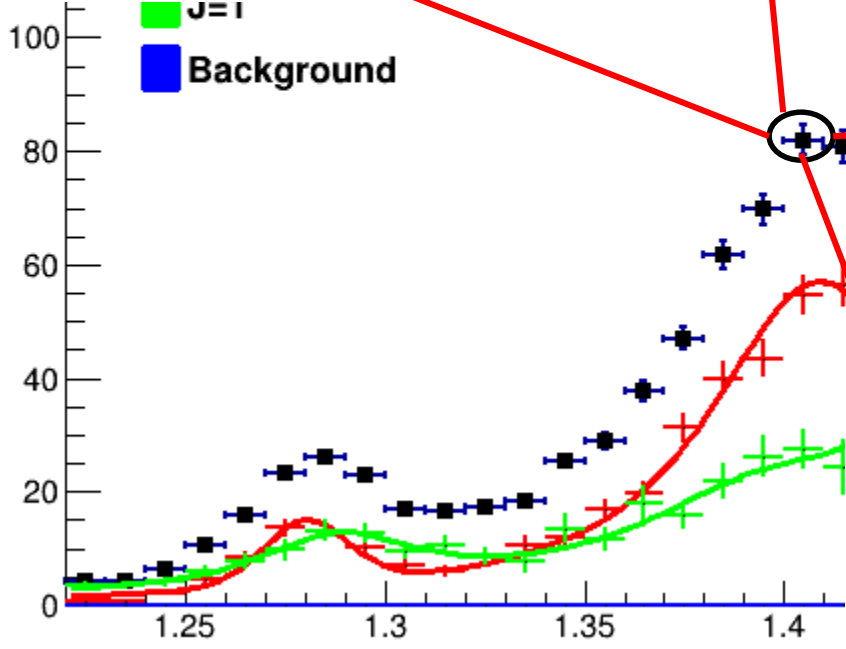
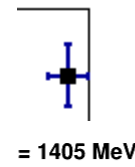
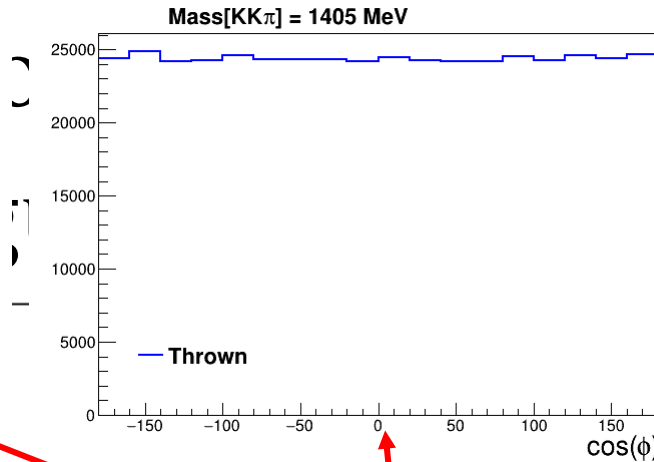
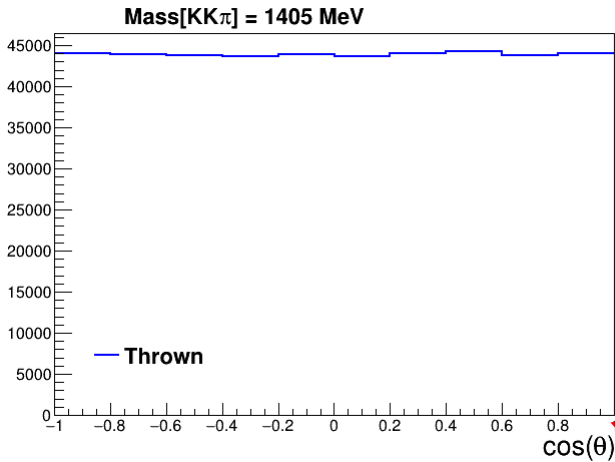


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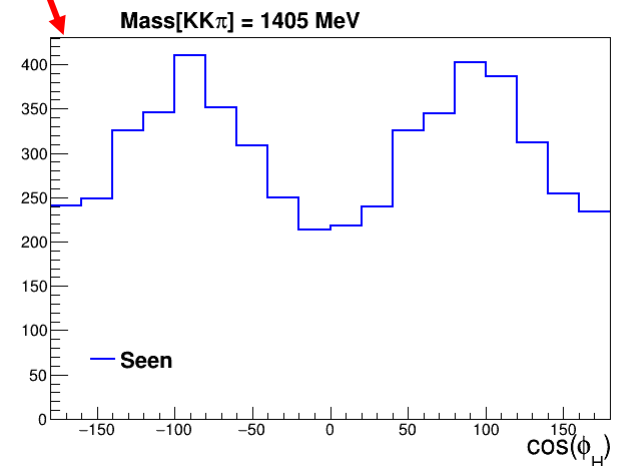
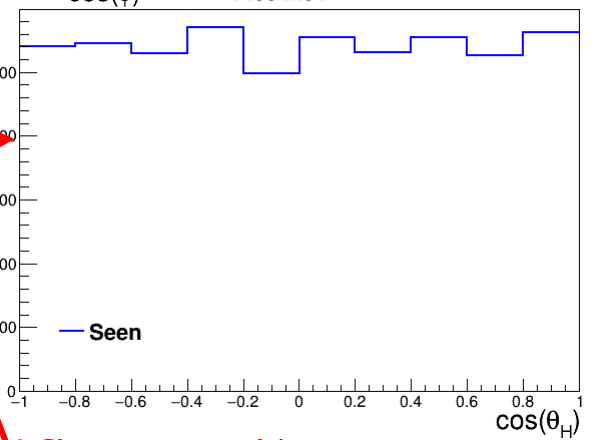
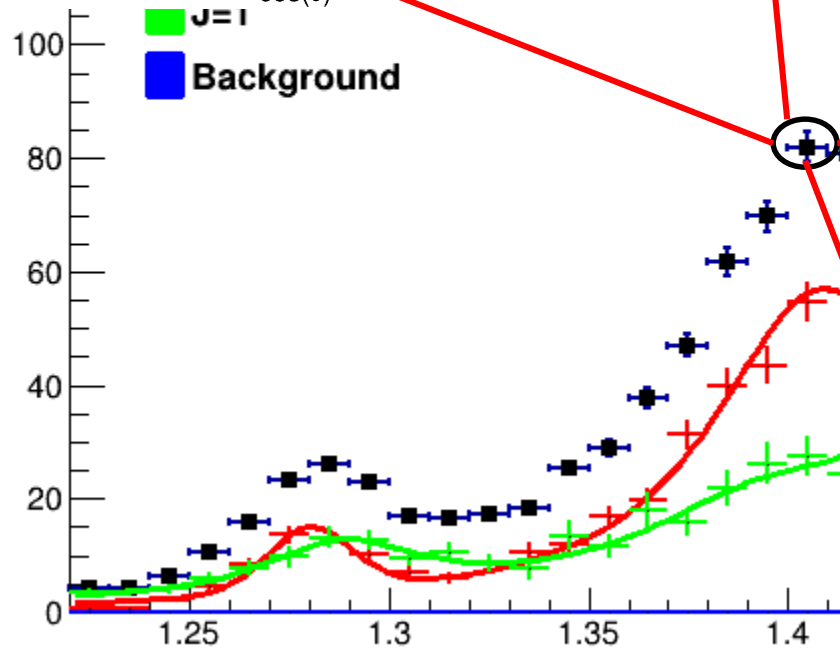
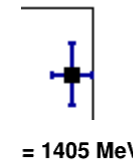
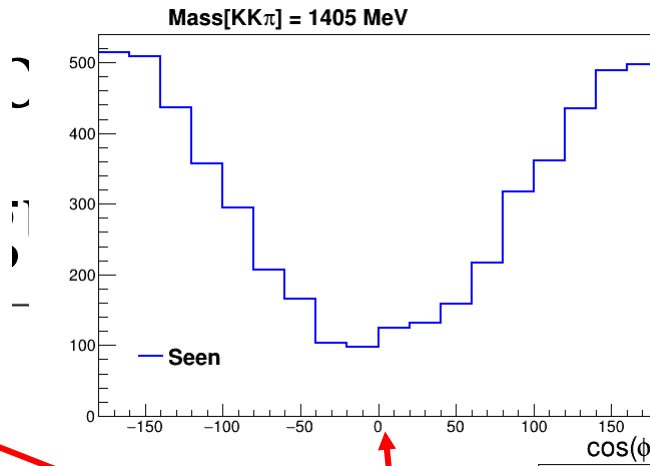
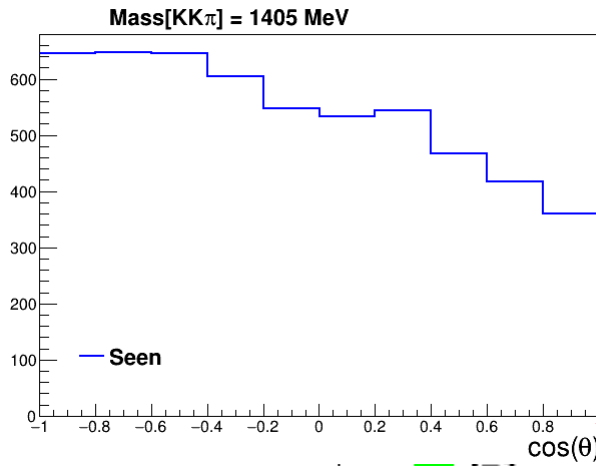
## Angular fit results



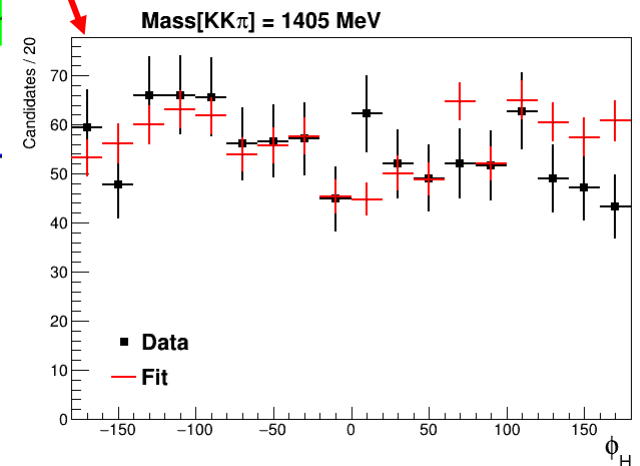
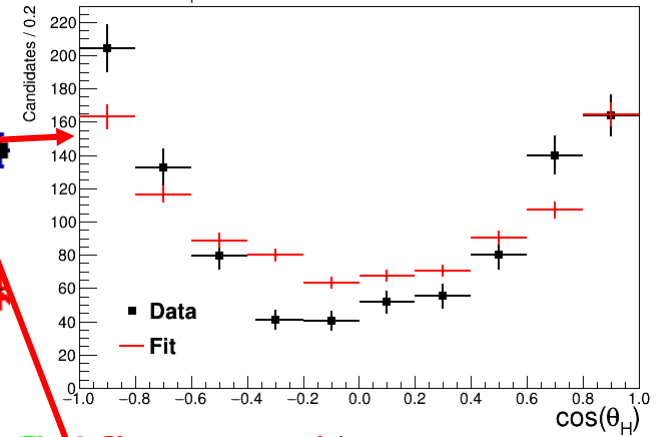
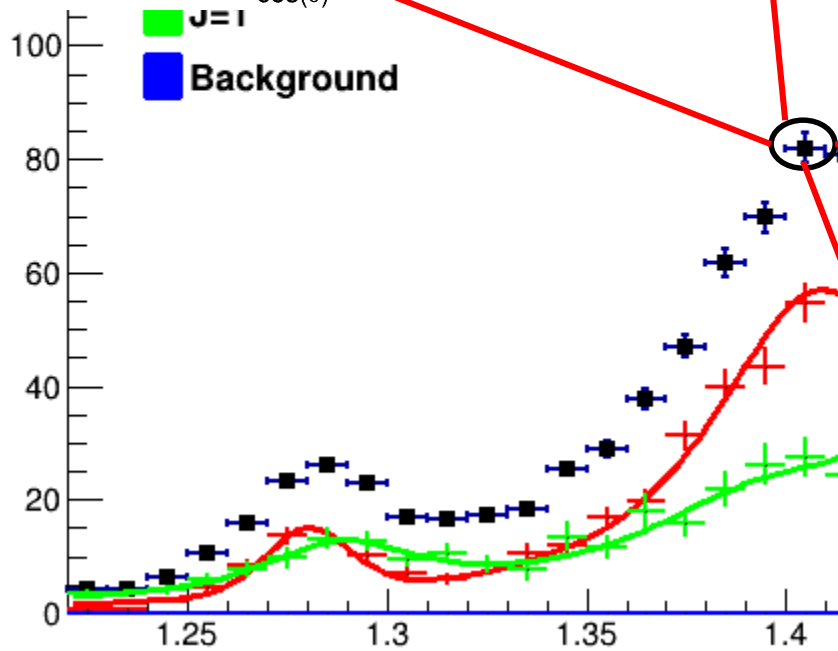
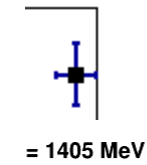
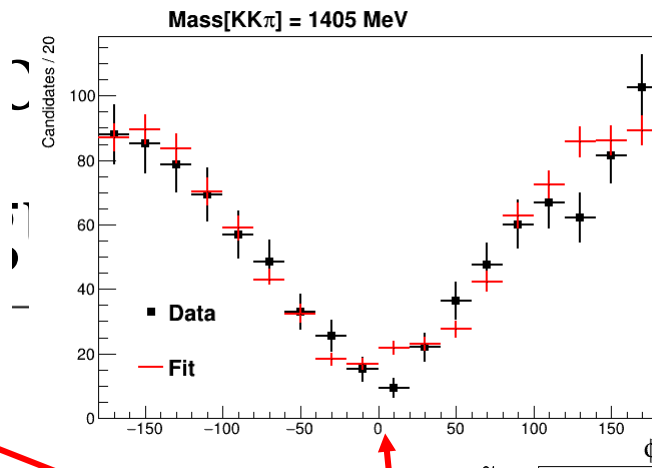
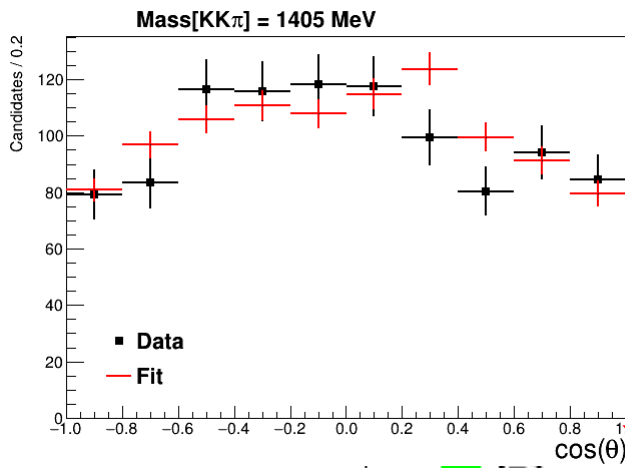
# ckground



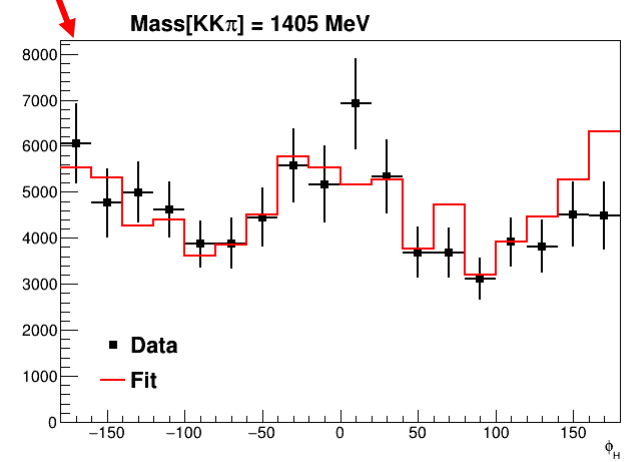
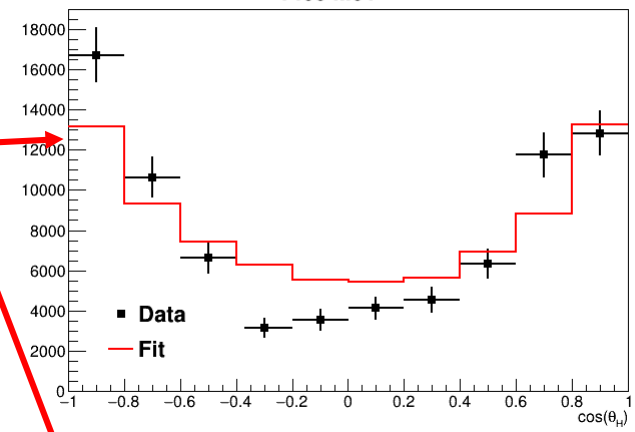
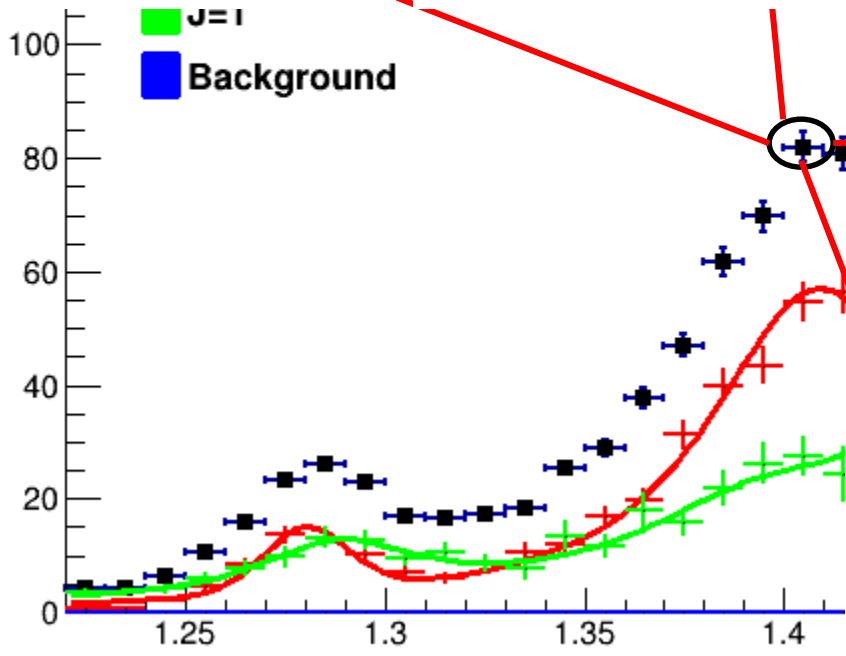
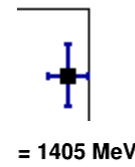
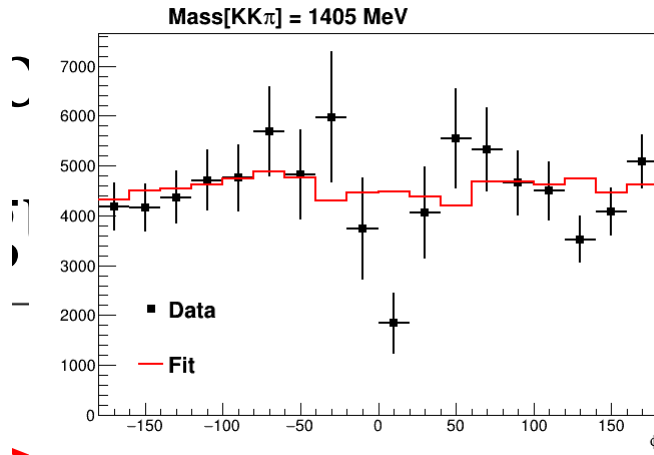
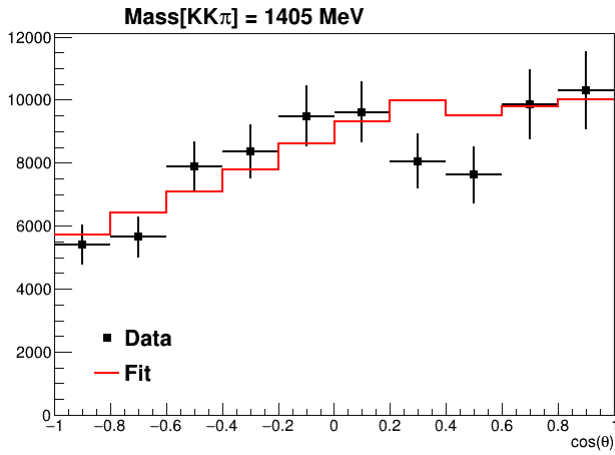
# ckground



# $\chi$ kground



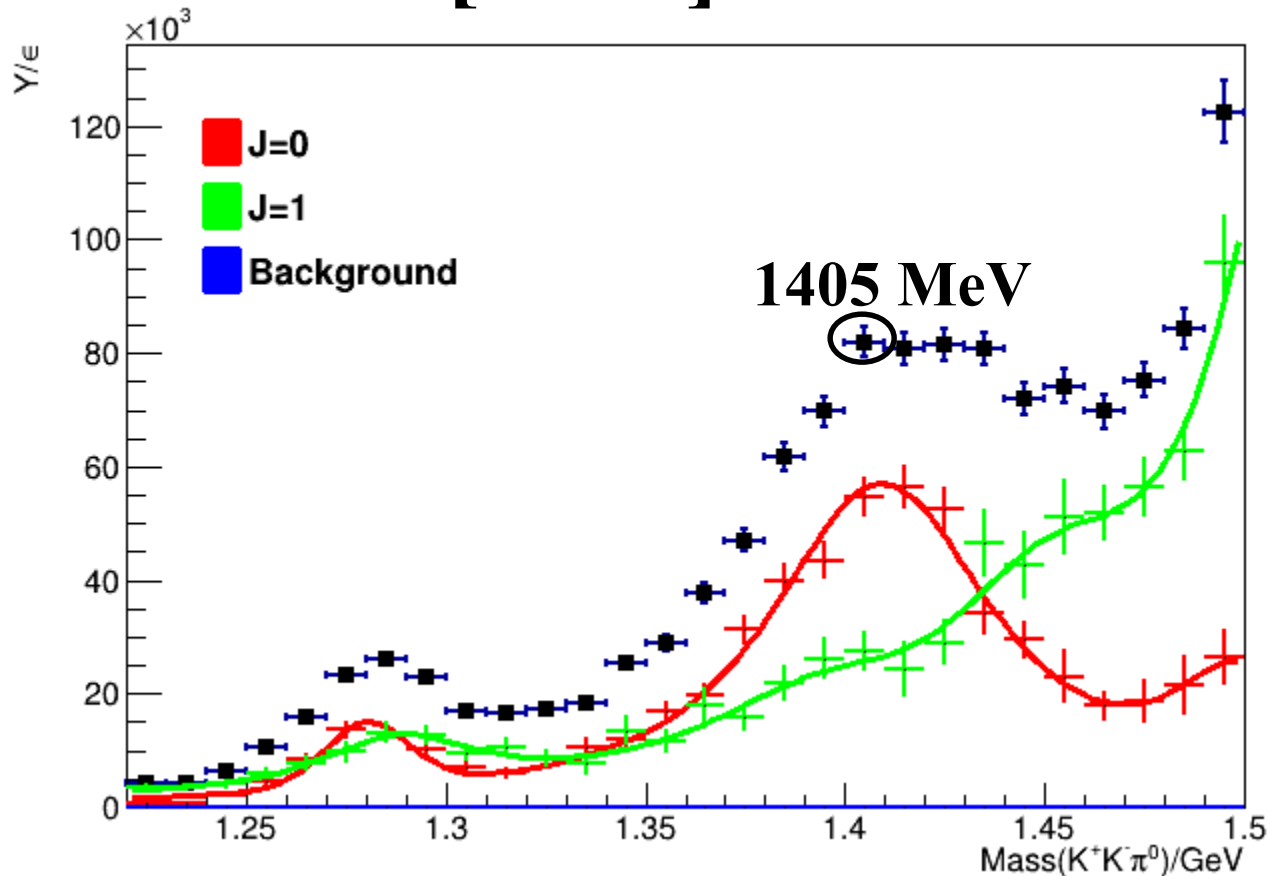
# ckground



Efficiency Corrected

# PWA Results for $J = 0, 1$ and background

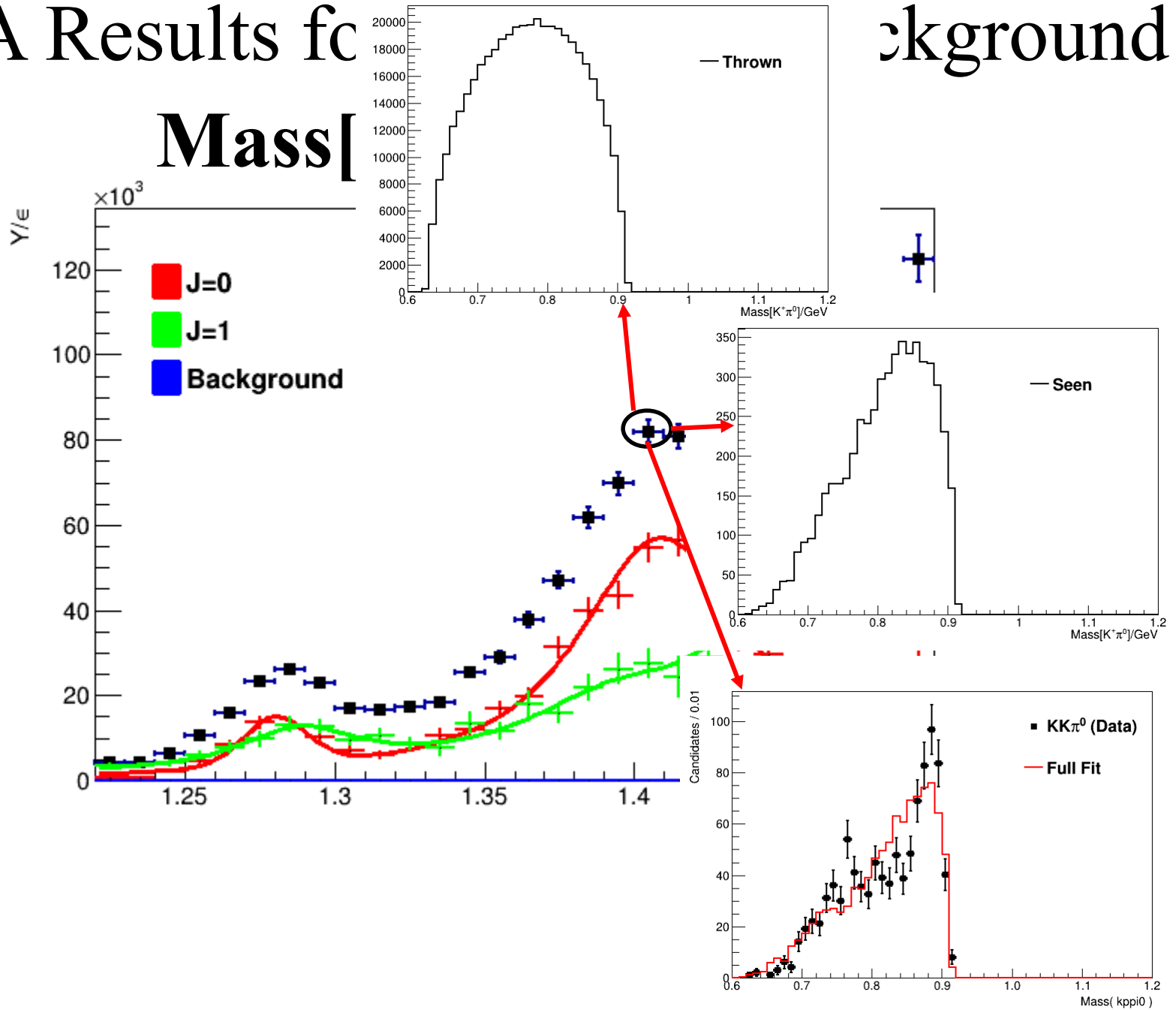
## Mass[ $K^+\pi^0$ ] fit results





# PWA Results for $f_0(1370)$

# Background

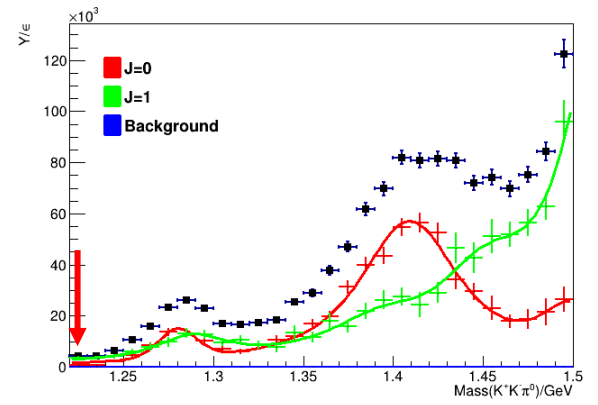


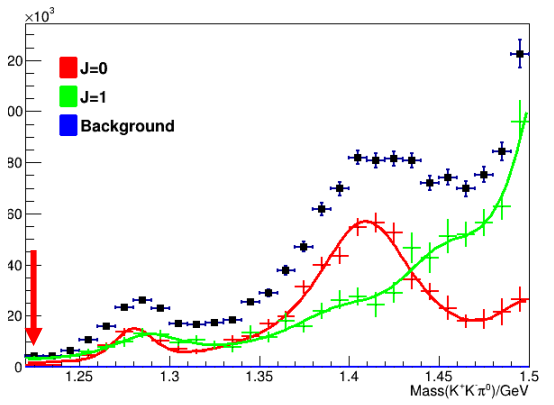
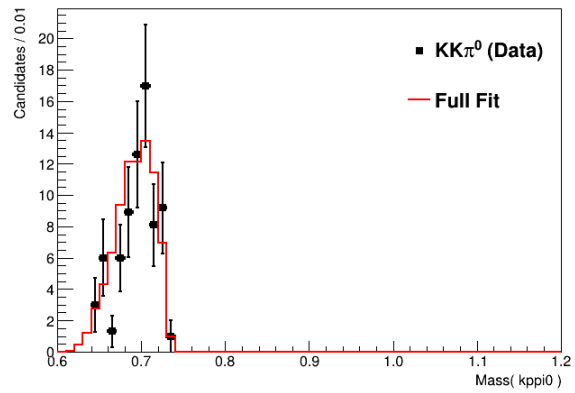
# Analysis

# Analysis

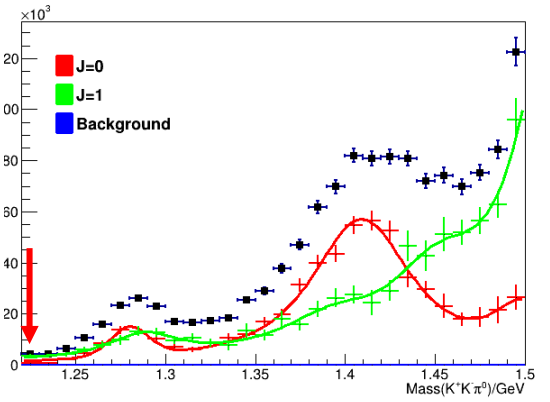
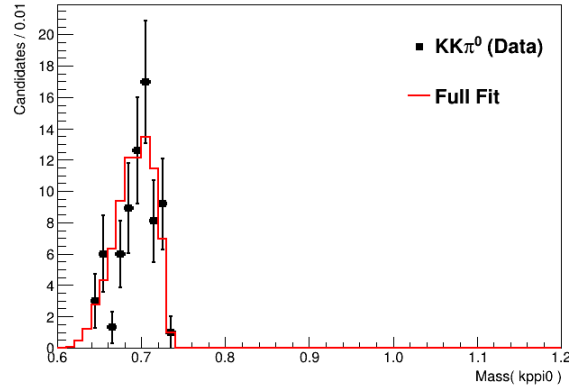
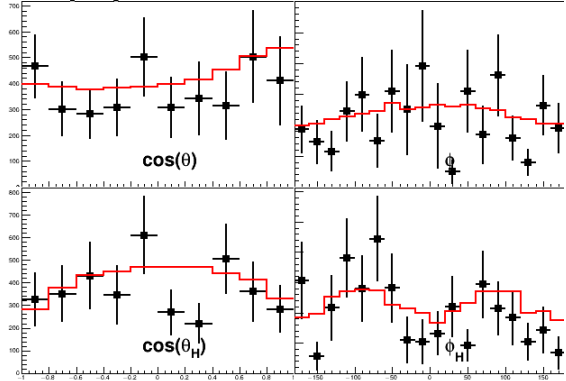
New



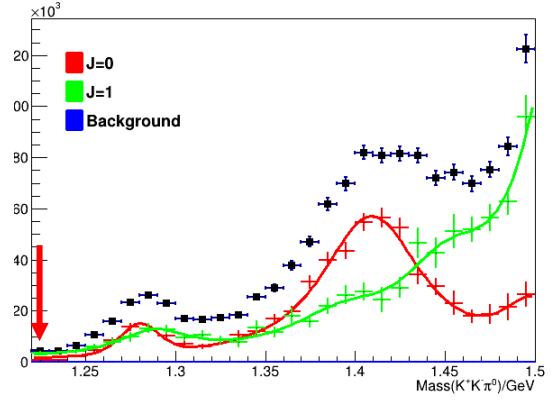
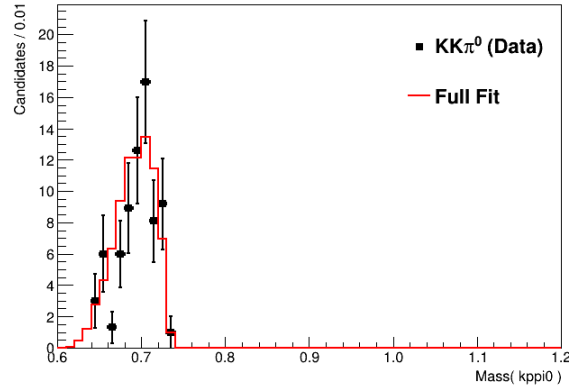
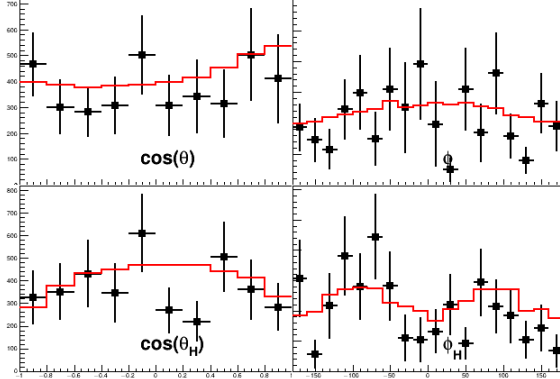




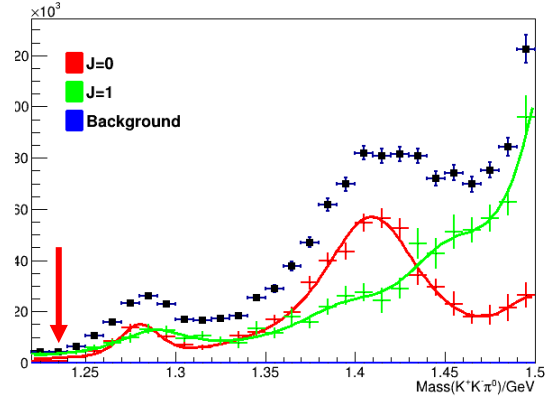
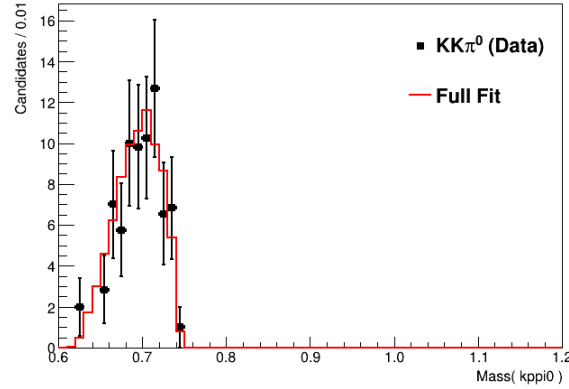
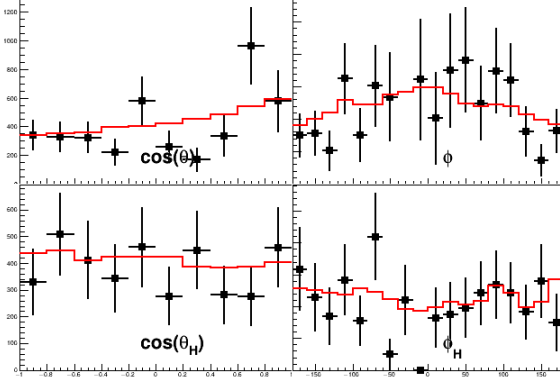
Mass[KK $\pi$ ] = 1225 MeV



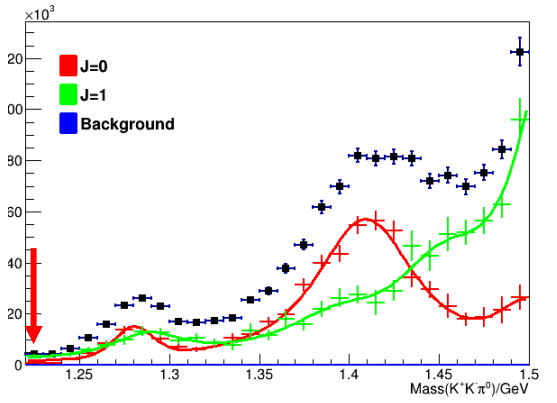
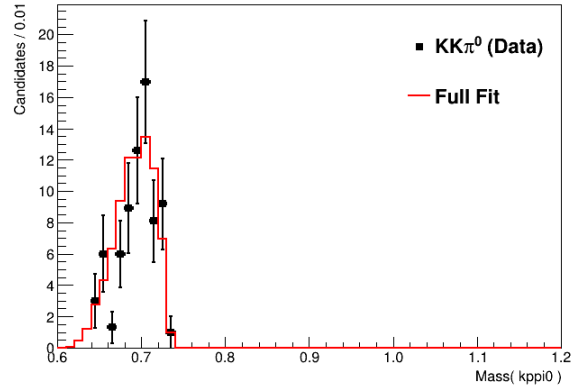
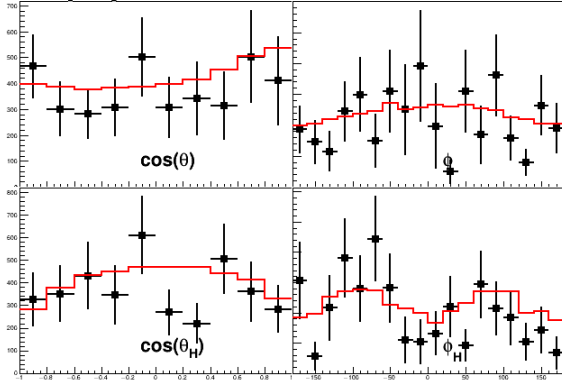
Mass[ $KK\pi$ ] = 1225 MeV



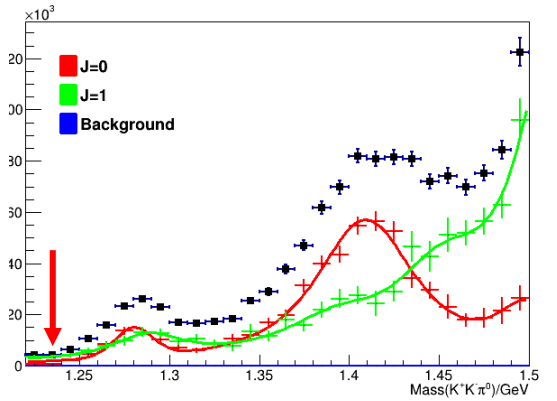
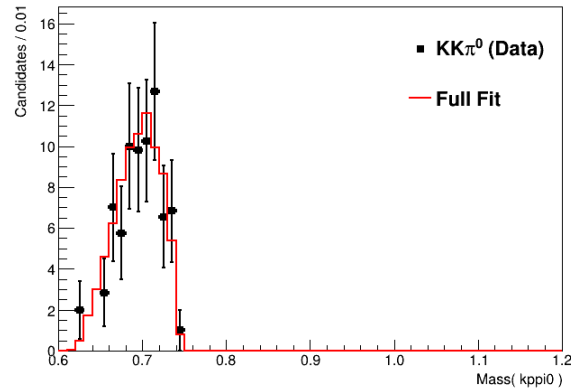
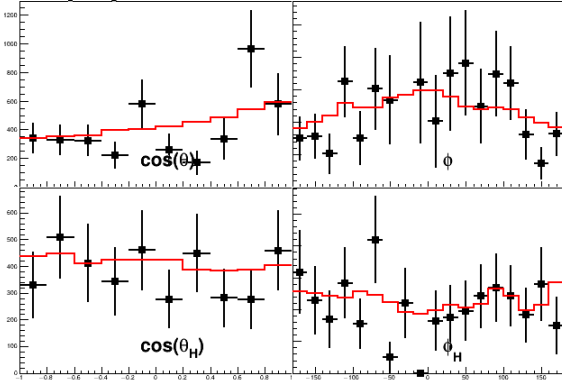
Mass[ $KK\pi$ ] = 1235 MeV



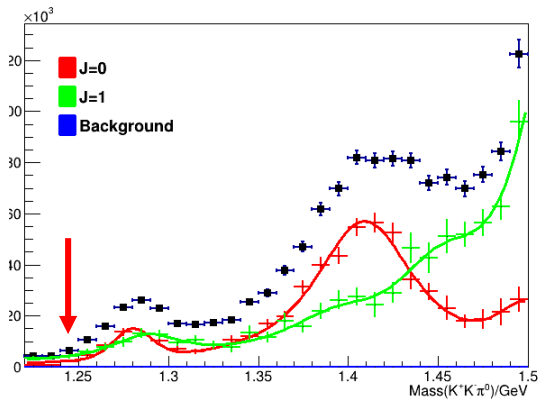
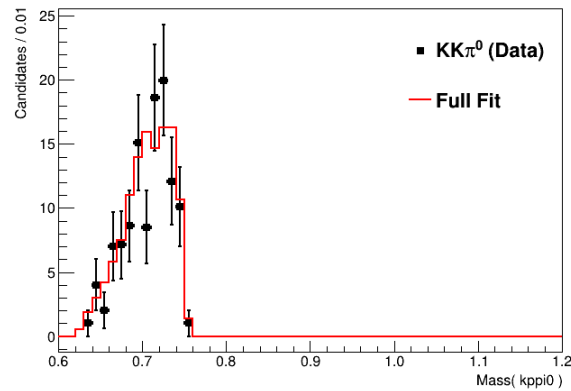
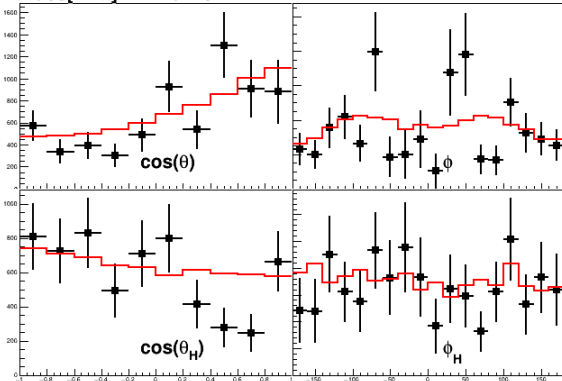
Mass[KK $\pi$ ] = 1225 MeV



Mass[KK $\pi$ ] = 1235 MeV

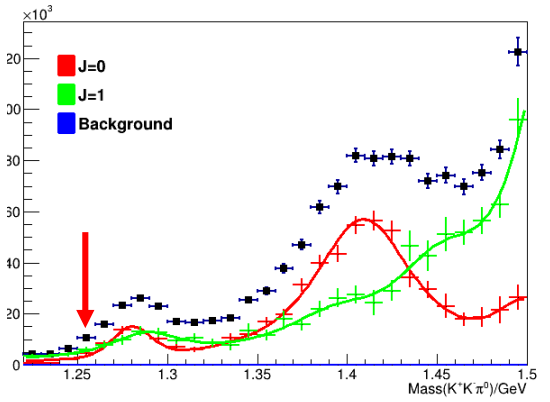
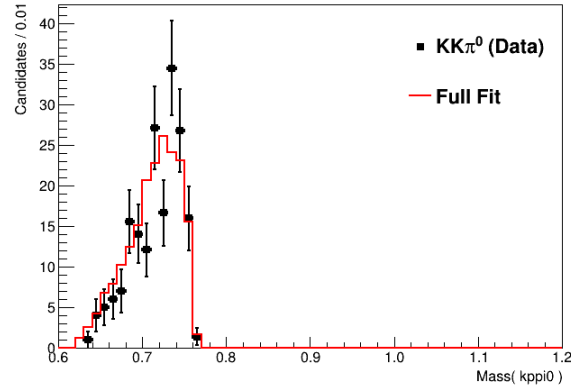
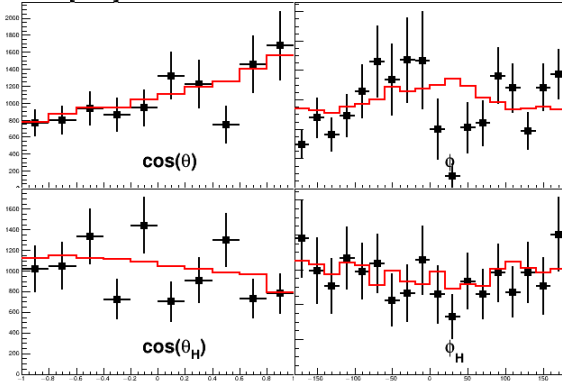


Mass[KK $\pi$ ] = 1245 MeV

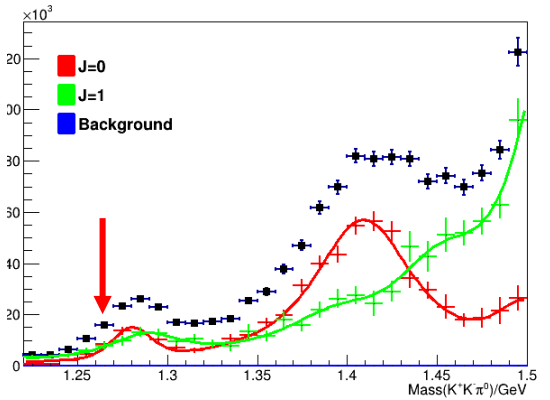
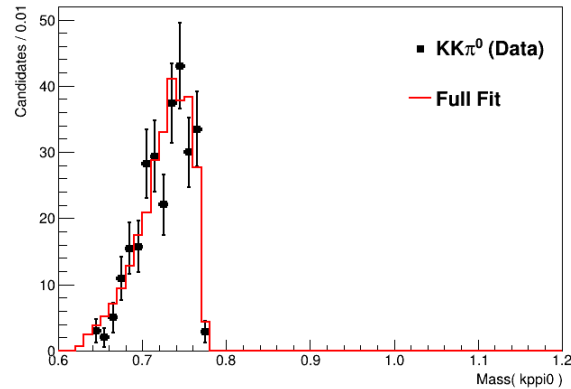
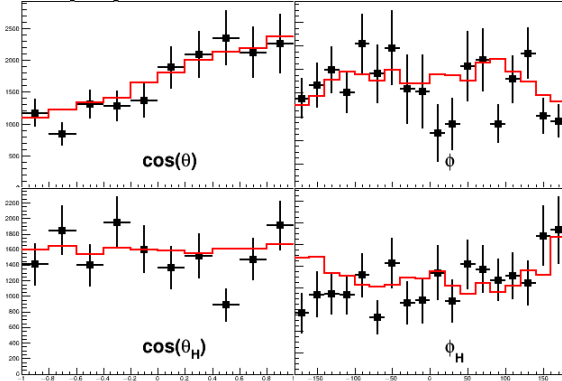




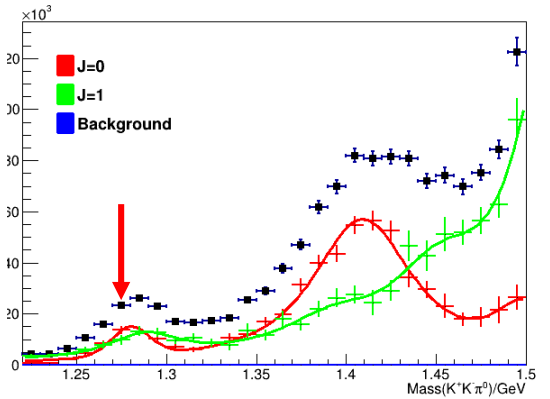
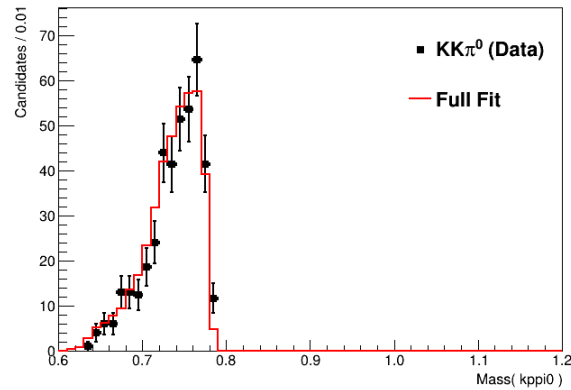
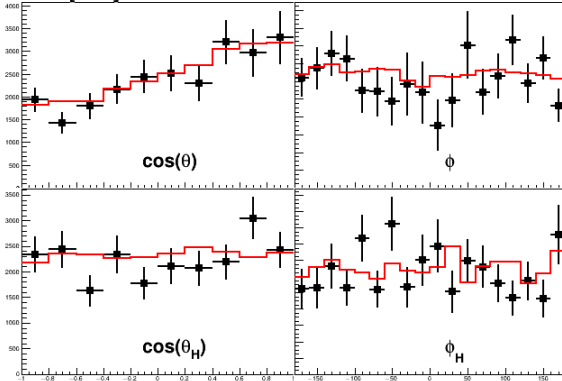
Mass[KK $\pi$ ] = 1255 MeV



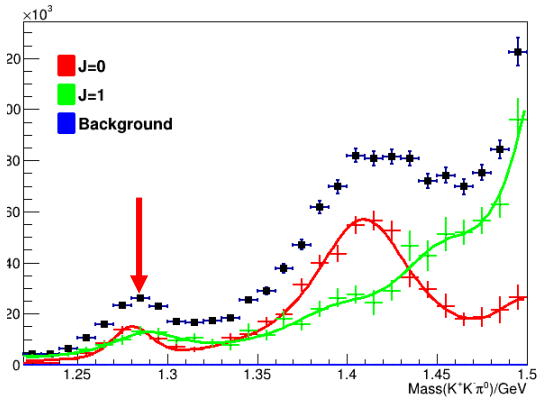
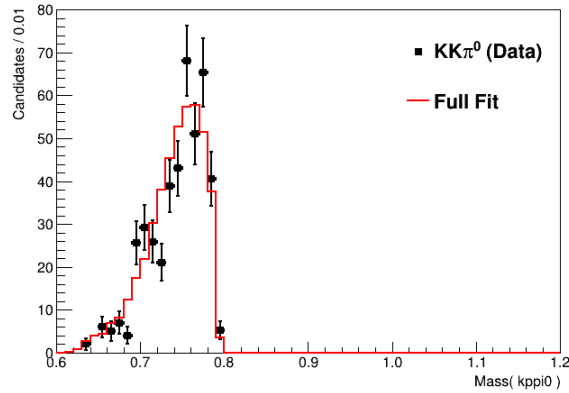
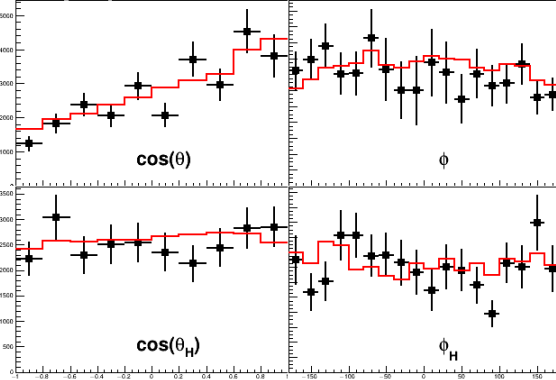
Mass[KK $\pi$ ] = 1265 MeV



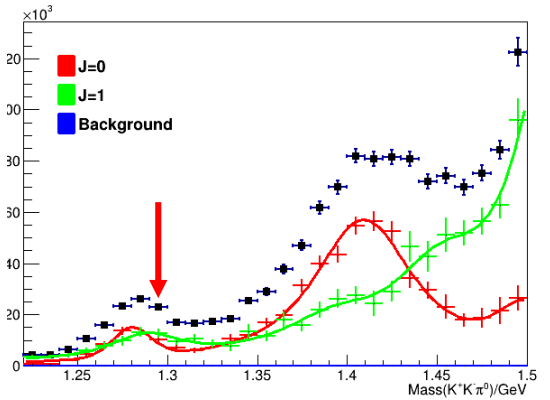
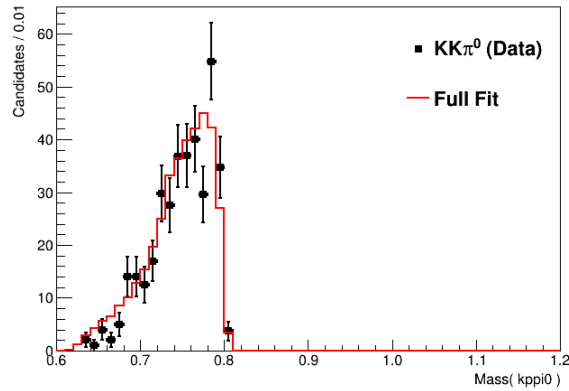
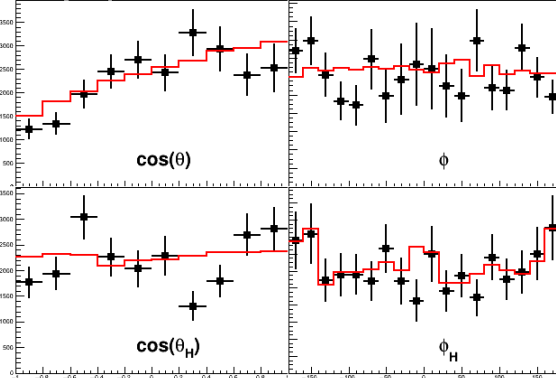
Mass[KK $\pi$ ] = 1275 MeV



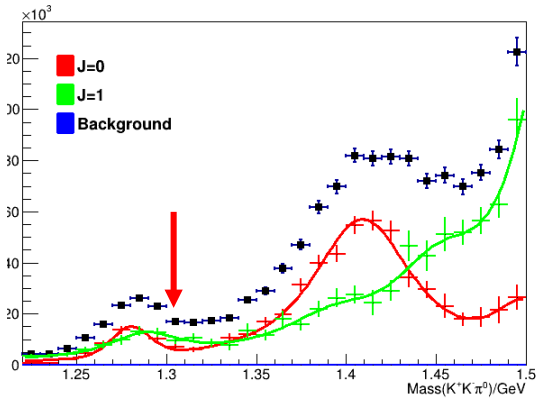
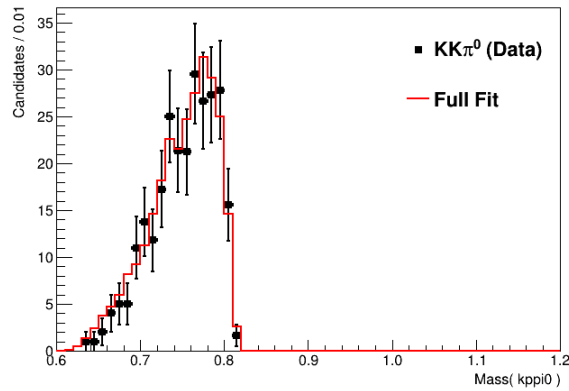
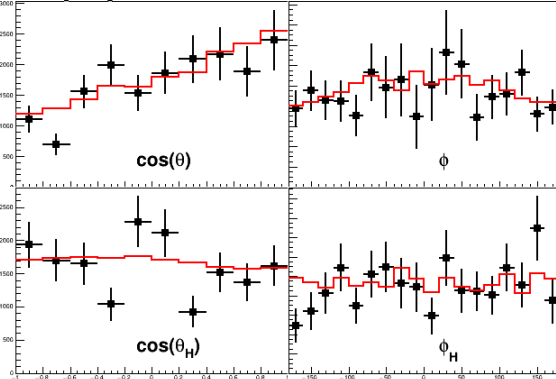
Mass[ $KK\pi$ ] = 1285 MeV



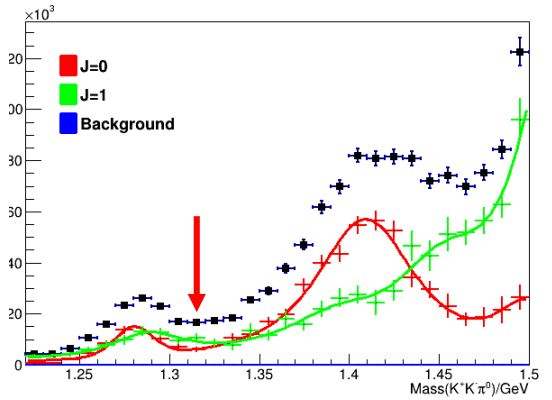
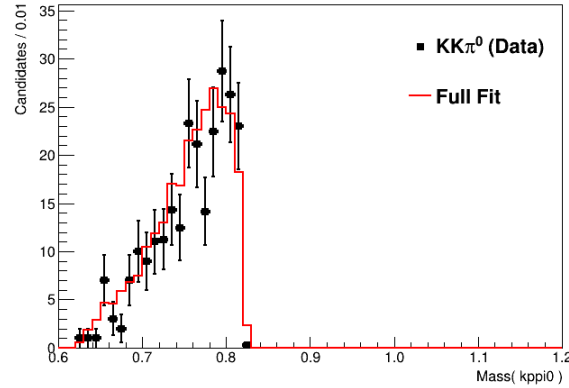
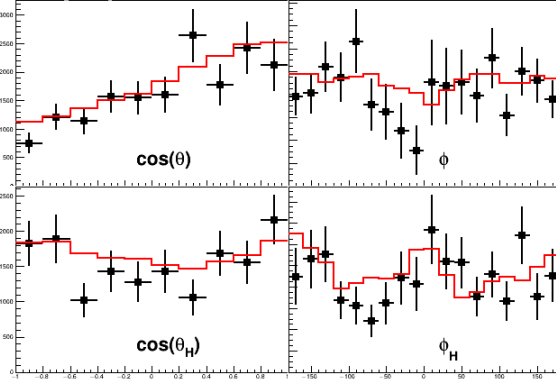
Mass[ $KK\pi$ ] = 1295 MeV



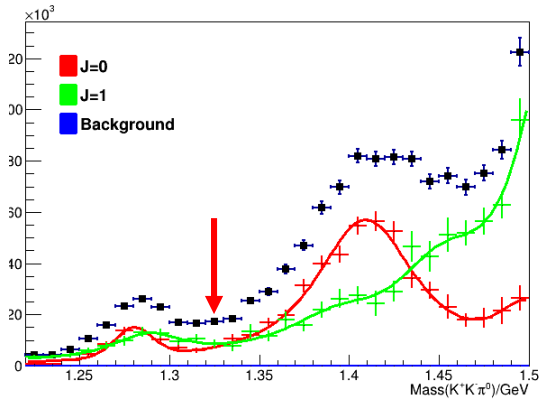
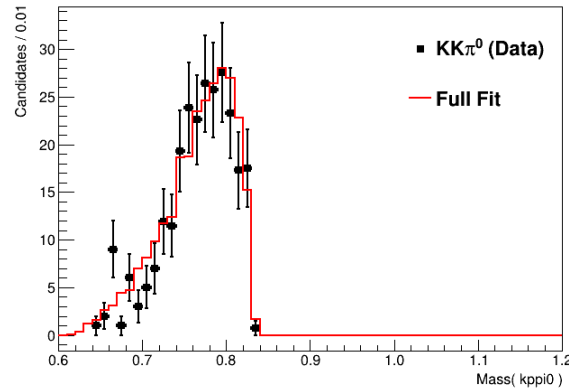
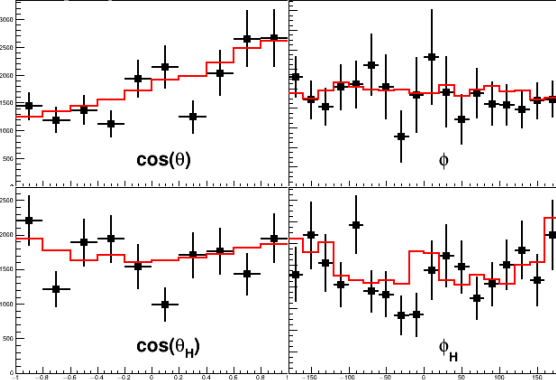
Mass[ $KK\pi$ ] = 1305 MeV



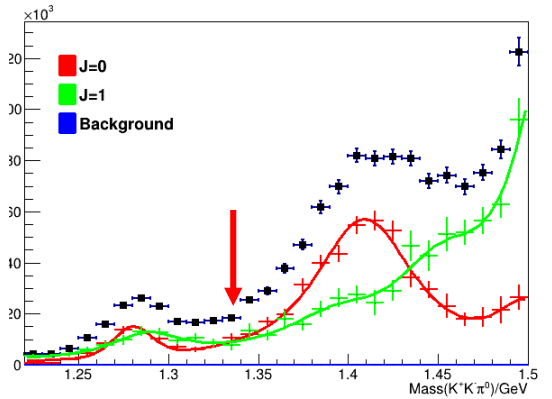
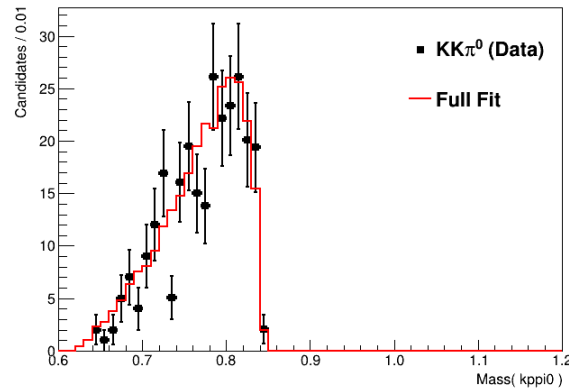
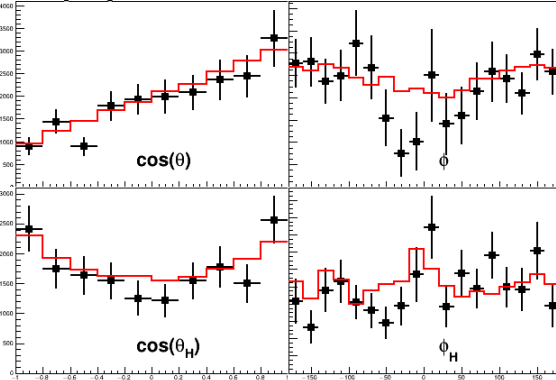
Mass[KK $\pi$ ] = 1315 MeV



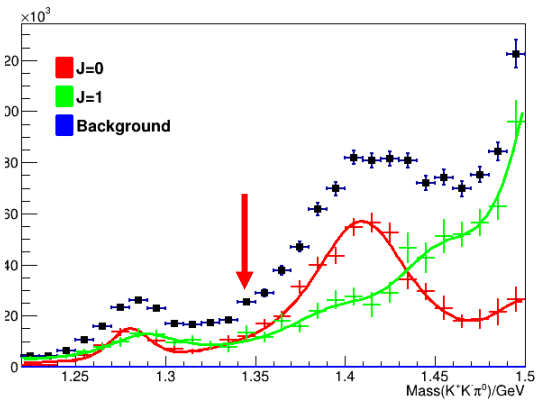
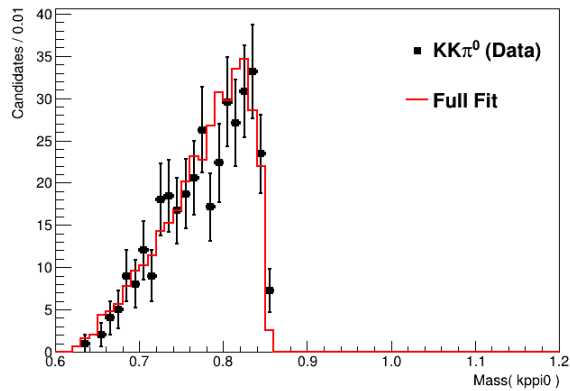
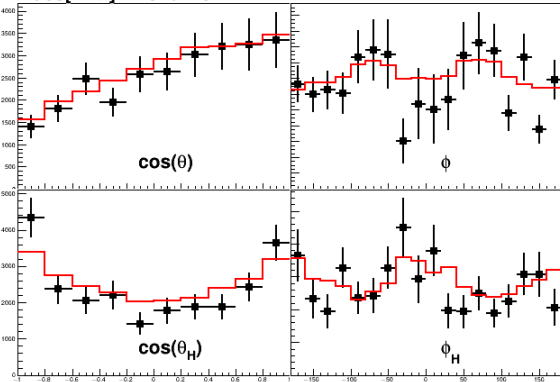
Mass[KK $\pi$ ] = 1325 MeV



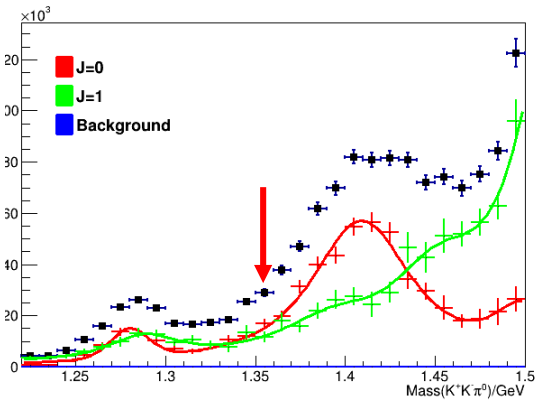
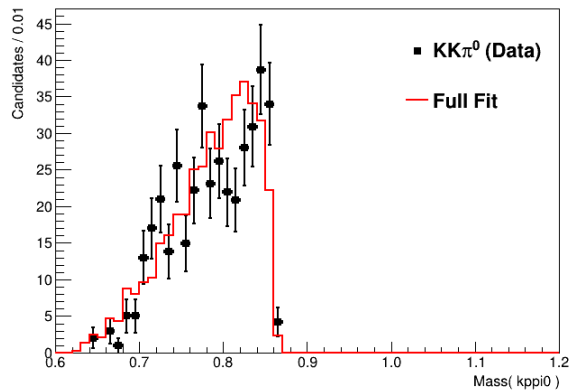
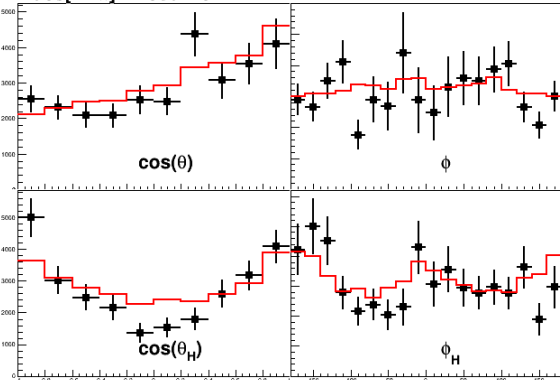
Mass[KK $\pi$ ] = 1335 MeV



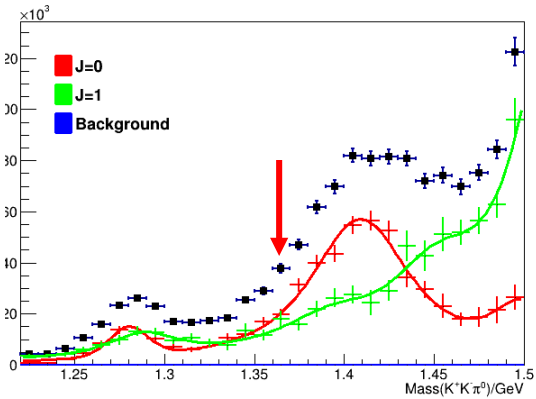
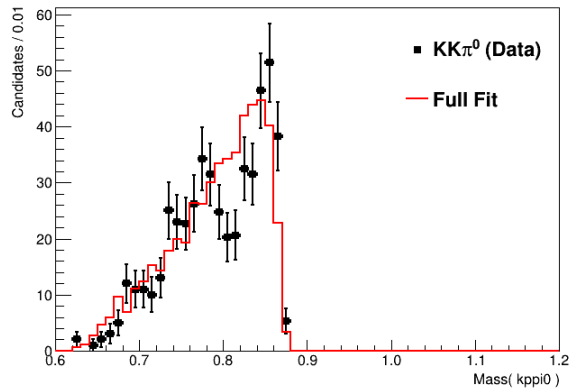
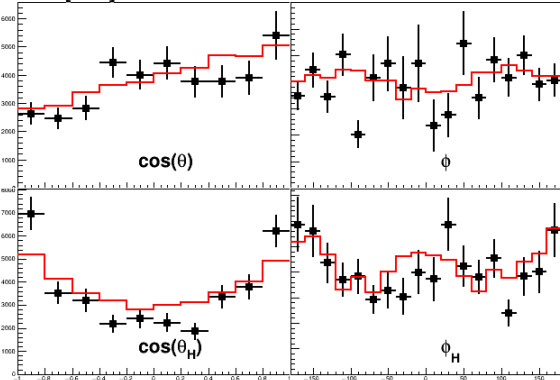
Mass[ $KK\pi$ ] = 1345 MeV



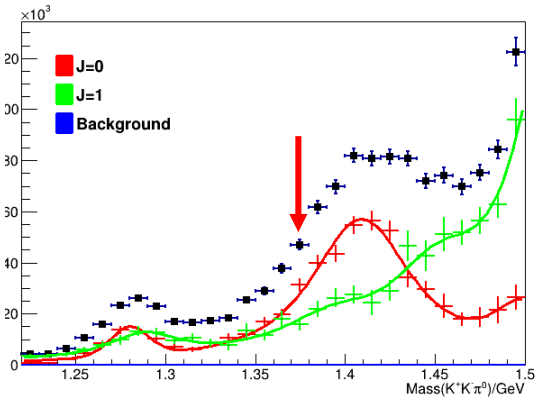
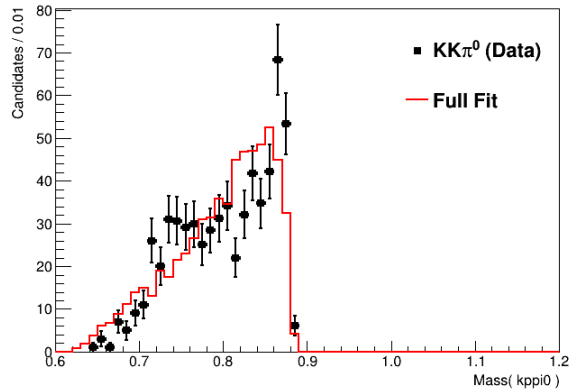
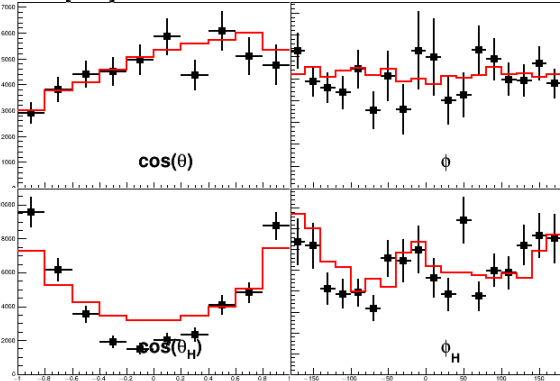
Mass[ $KK\pi$ ] = 1355 MeV



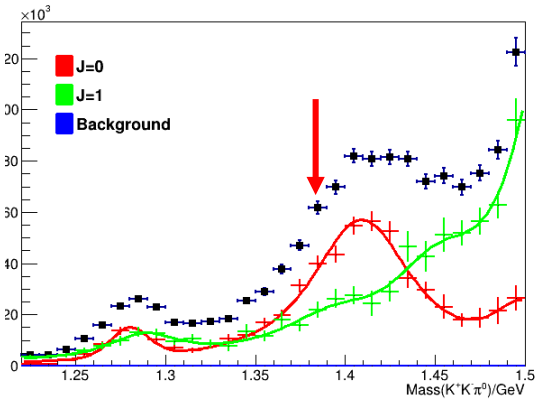
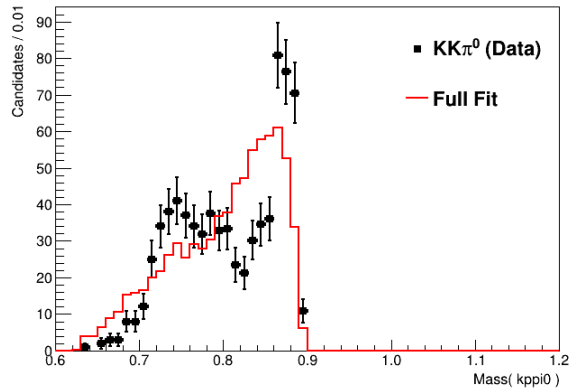
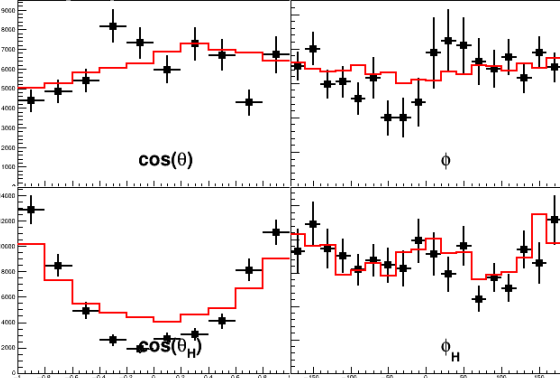
Mass[ $KK\pi$ ] = 1365 MeV



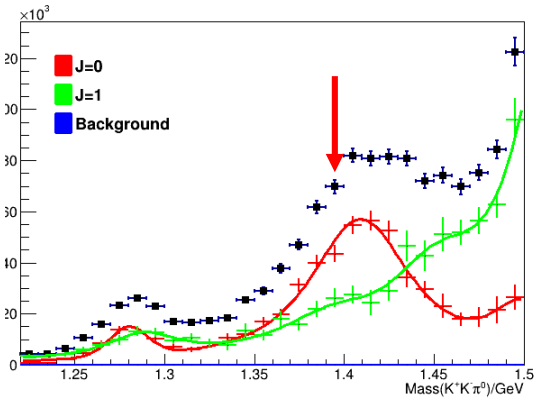
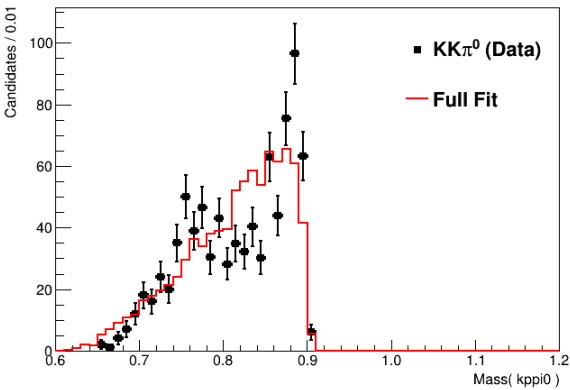
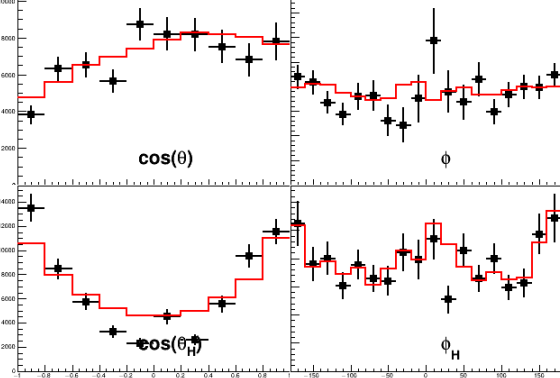
Mass[ $KK\pi$ ] = 1375 MeV



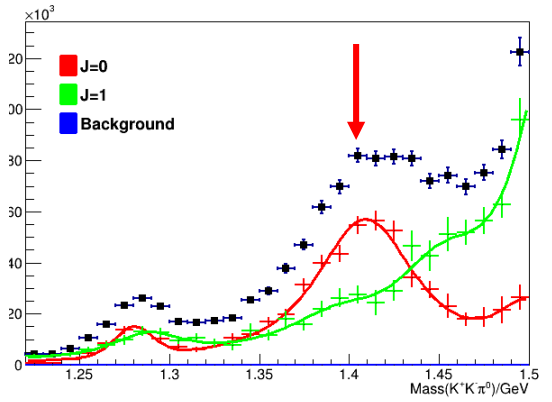
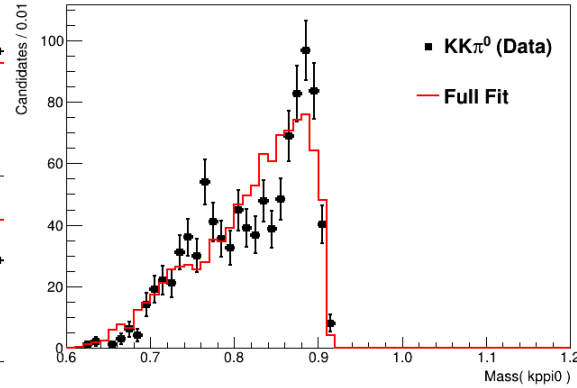
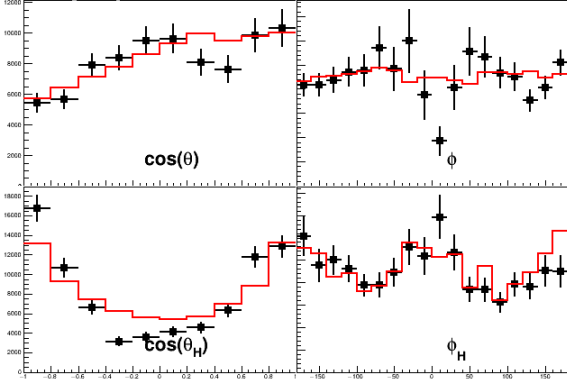
Mass[ $KK\pi$ ] = 1385 MeV



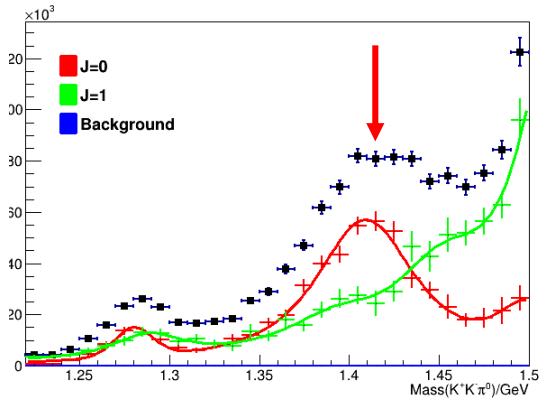
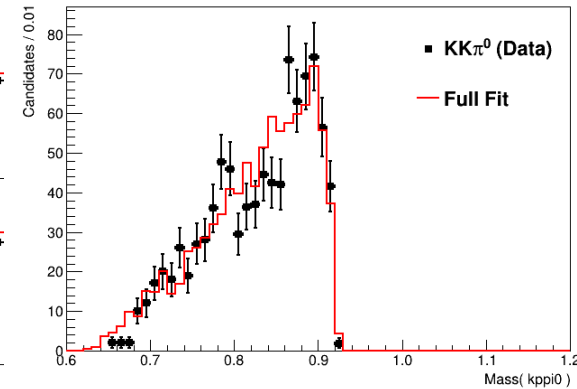
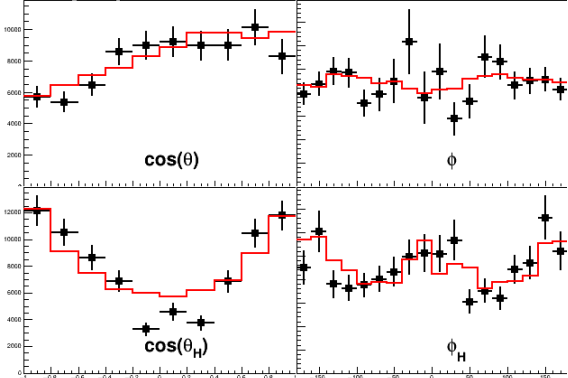
Mass[ $KK\pi$ ] = 1395 MeV



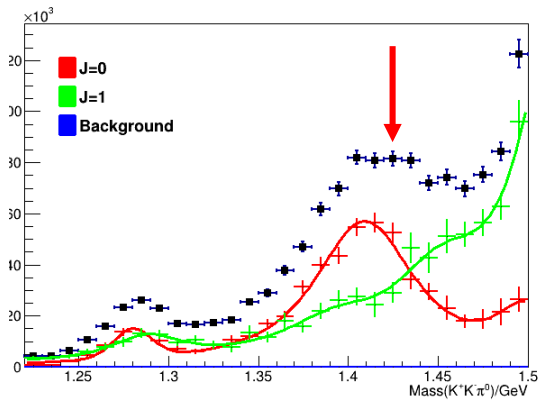
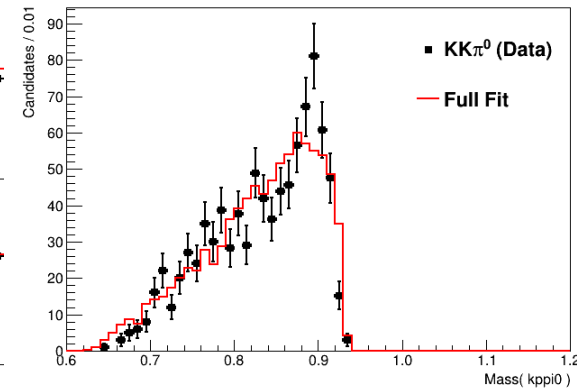
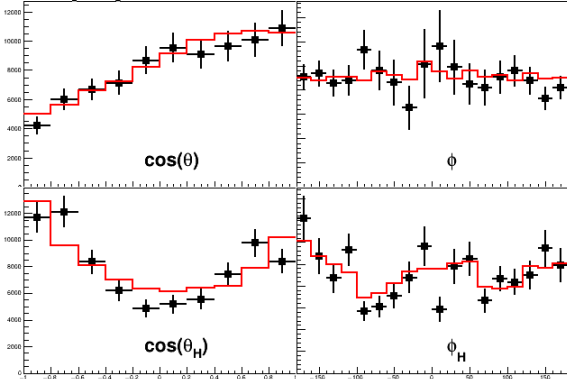
Mass[KK $\pi$ ] = 1405 MeV



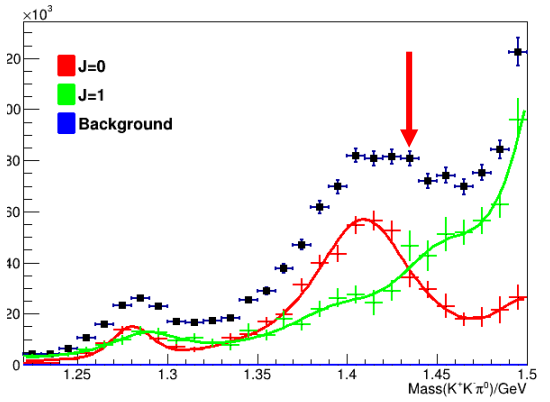
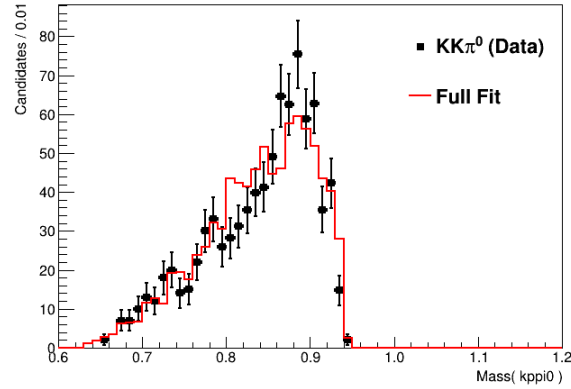
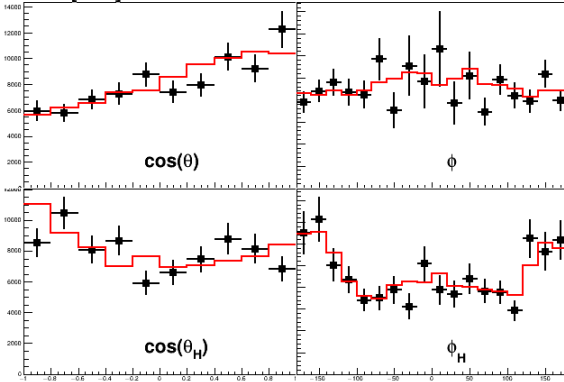
Mass[KK $\pi$ ] = 1415 MeV



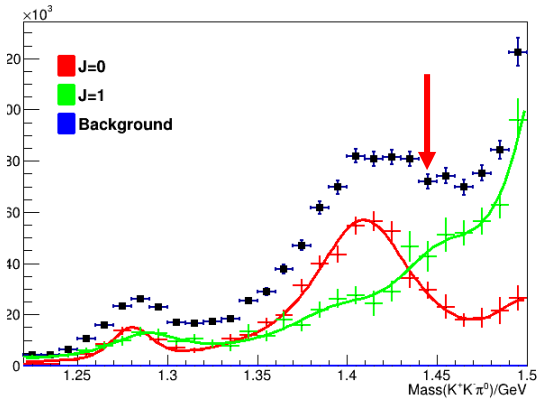
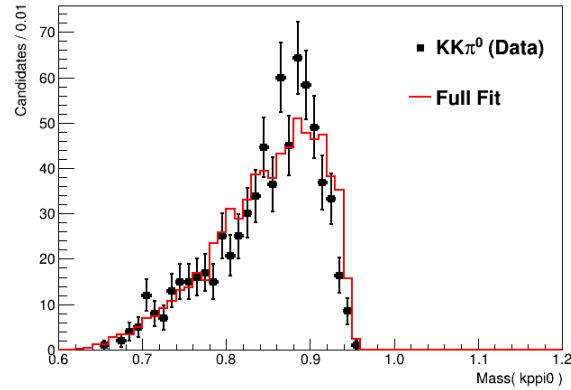
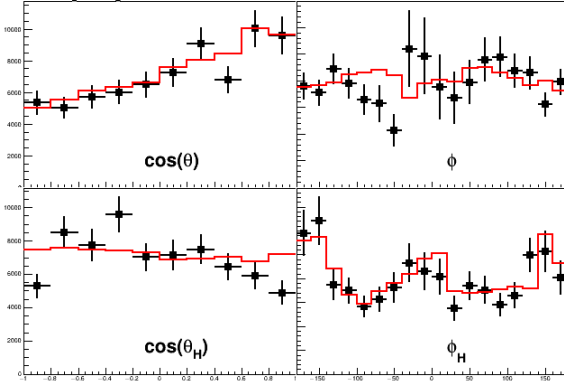
Mass[KK $\pi$ ] = 1425 MeV



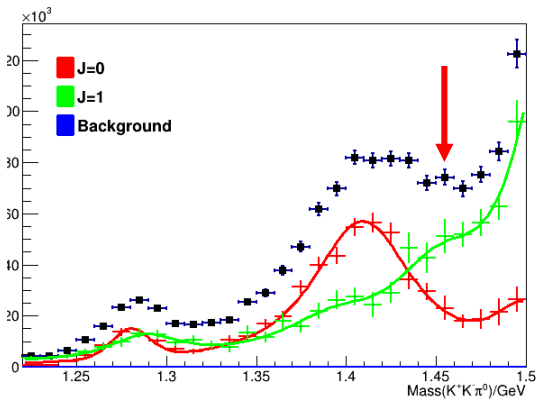
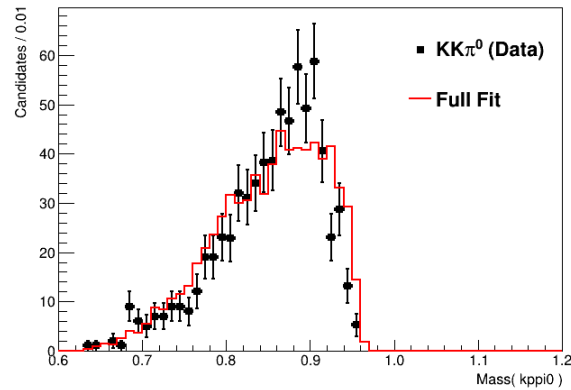
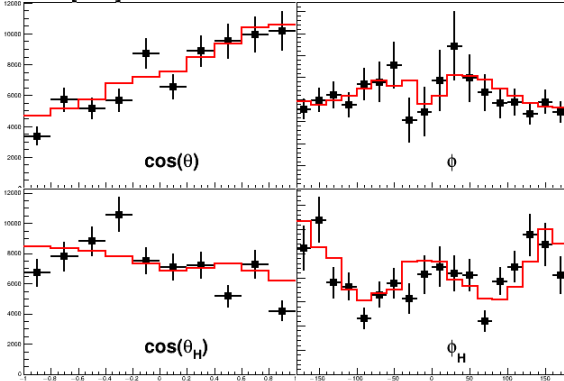
Mass[ $KK\pi$ ] = 1435 MeV



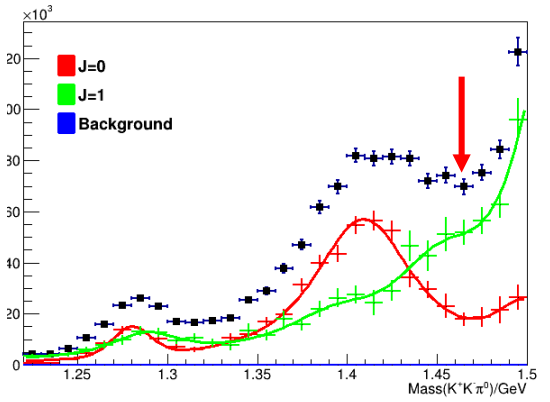
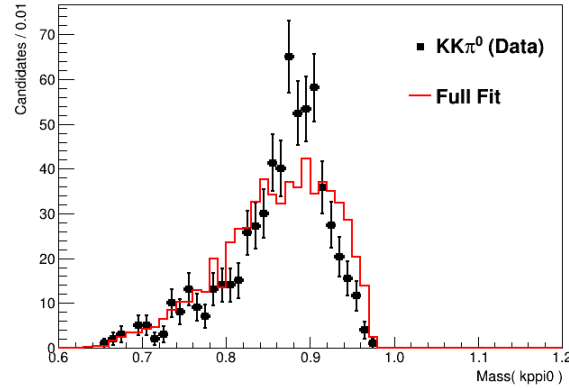
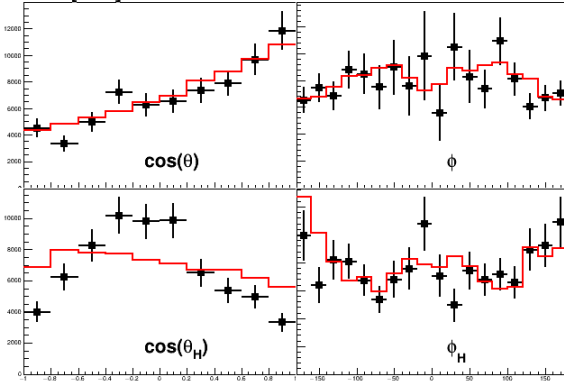
Mass[ $KK\pi$ ] = 1445 MeV



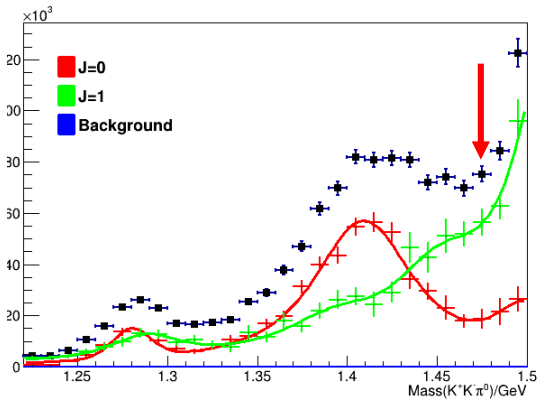
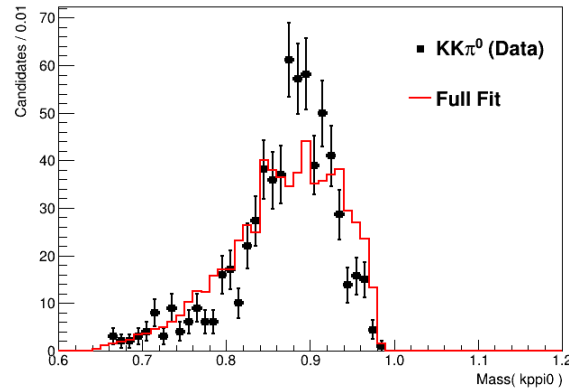
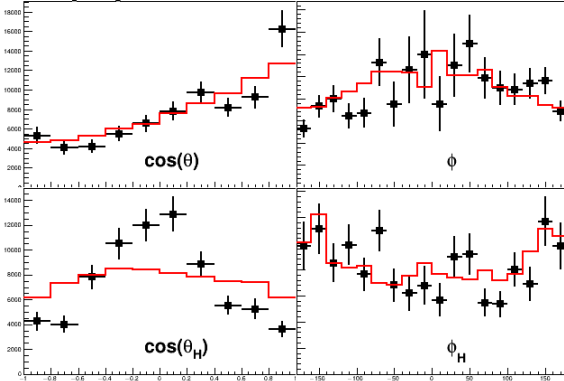
Mass[ $KK\pi$ ] = 1455 MeV



Mass[ $KK\pi$ ] = 1465 MeV



Mass[ $KK\pi$ ] = 1475 MeV



Mass[ $KK\pi$ ] = 1485 MeV

