Group meeting
March 29th, 2024

Instruction responsibilities

- Classes:
  - PHY 252:
    - Three lectures (one last week two this week)
    - Created and graded exam (last week)
    - Graded homework (last week)
    - Created pdf of next homework assignment
  - PHY 331:
    - Four lectures (two each week)
    - Graded homework (last week)
    - Started creating exam 3

- Undergraduate independent study and research:
  - Luis: Helping prepare poster
  - Preston: No meetings (Preston is training with National Guard)

Service responsibilities

- Committee:
  - GlueX Compton Analysis Review Committee:
    - Chair released comments (this week)
  - Graduate College Completion Fellowship Committee:
    - Finished scoring (last week)
  - Pre Award Faculty Panel:
    - Status : Nothing for two weeks
  - High school students
    - Had awesome assistance from group members

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  - High school students
    - Had awesome assistance from group members: **Thanks!!!**

Group responsibilities

- Still waiting for work from DOE about carry-forward
- Received email about next round of GlueX shifts: Next slide

Subject: [EXTERNAL] GlueX membership
From: "Naomi Jarvis" <nsj@cmu.edu>
Date: Wed, March 27, 2024 9:40 am
To: "Michael Dugger" <dugger@jlab.org>
Priority: Normal
Options: View Full Header | View Printable Version | Download this as a file | View Message Details

Dear Mike,

We need to update our collaboration membership list and shift roster early enough that we can start shift allocation in June for the run period starting this fall. The people listed at your institution are (http://www.gluex.org/collaboration.html):
Michael Dugger, Alan Gardner, Katelyn Hernandez, Barry G Ritchie, Brandon Sumner.

The following are on the P.I. email list (https://mailman.jlab.org/mailman/listinfo/gluex-pi):
Mike Dugger, Barry Ritchie.

Please let me know before 5 April if this is still correct or should be updated.
If anyone has joined or left your group, please tell me who this was and the date when they joined/left. This information will be used to update the author list.

If you need to make a request for exception from or **assistance with the shift policy, please email the Collaboration Board before 14 May 2024**. Let us know why you would find it difficult to follow the policy, so that we can see how we can help.

Best regards,
Naomi,
for the GlueX Collaboration Board.

Group responsibilities

- Still waiting for work from DOE about carry-forward
- Received email about next round of GlueX shifts
- Forwarded email to Barry about GlueX membership and notified him that, unless he is willing to man shifts utilizing his own funds, we will remove him from the ASU roster of GlueX members due to his retirement.
- Met with Katelyn Tuesday and Thursday
- GlueX: Checked that my software could read new tree format for TPOL trees in CPP runs

Analysis

Presentation I gave on Wednesday

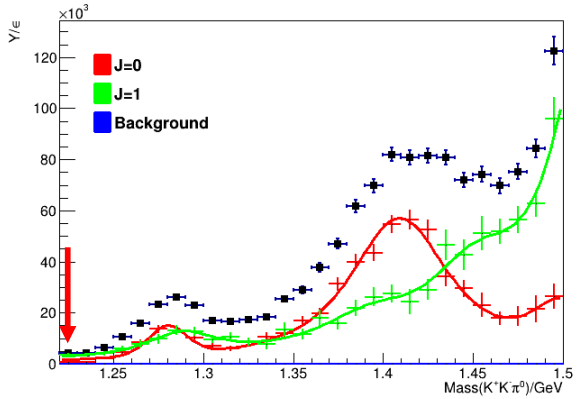
$K^+K^-\pi^0$ update

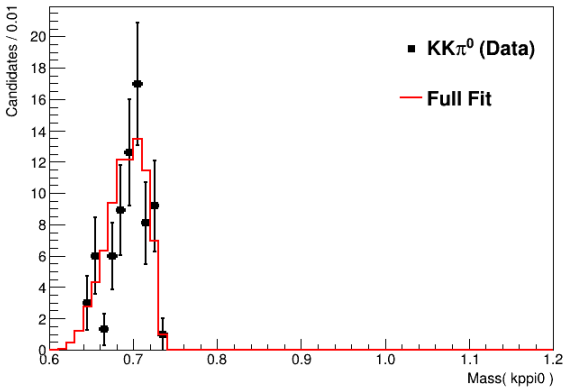
PWA using K^*K and phase space $KK\pi$

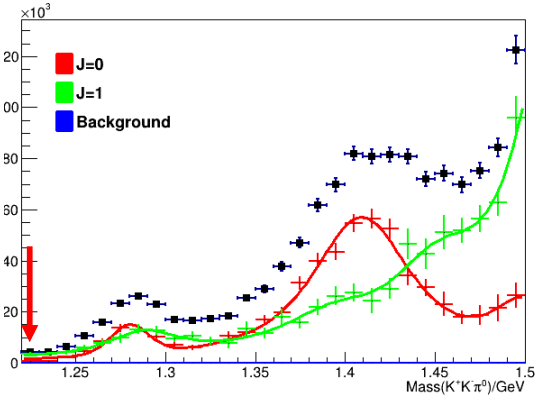
Mass-independent PWA of $KK\pi$

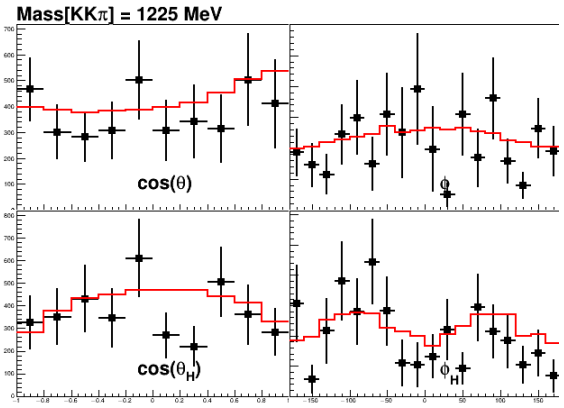
Included:

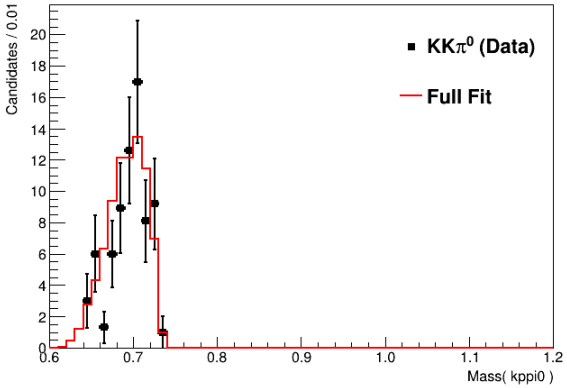
- $J=0^-$
  - $(K^+K^-)_{S\text{-}phsp}\pi^0$
  - $(K^+\pi^0)_{P\text{-}phsp}K^-$
  - $(K^-\pi^0)_{P\text{-}phsp}K^+$
- $J=1^+$
  - $(K^+K^-)_{S\text{-}phsp}\pi^0$
  - $(K^+\pi^0)_{P\text{-}phsp}K^-$
  - $(K^-\pi^0)_{P\text{-}phsp}K^+$
- $J=1^-$
  - $(K^+\pi^0)_{P\text{-}phsp}K^-$
  - $(K^-\pi^0)_{P\text{-}phsp}K^+$


×10³
Y/ε
120
100
80
60
40
20
0
J=0
J=1
Background
1.25
1.3
1.35
1.4
1.45
1.5
Mass(K⁺K⁻π⁰)/GeV


Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)


×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV


Mass[KKπ] = 1225 MeV
cos(θ)
φ
cos(θ_H)
φ_H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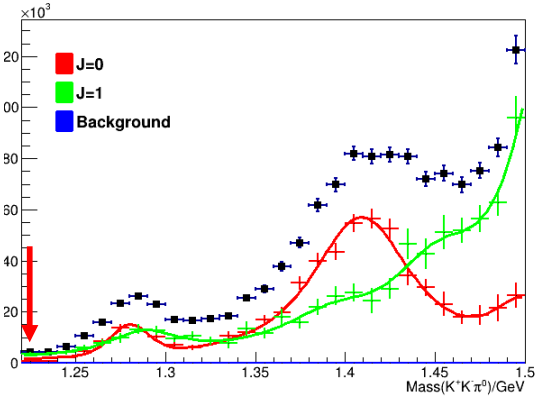
×10³
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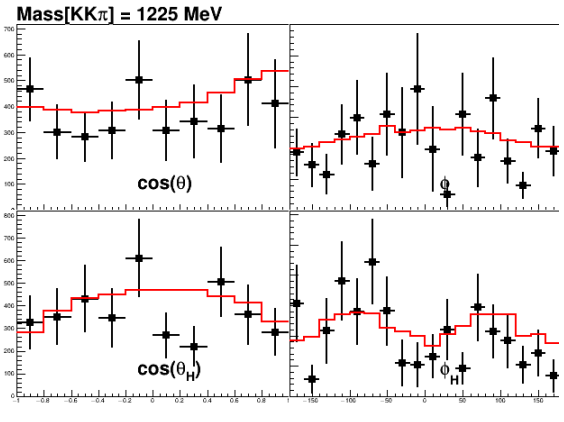
J=1
Background
Mass(K⁺K⁻π⁰)/GeV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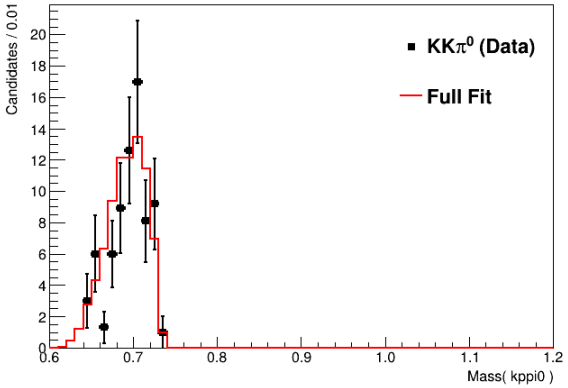
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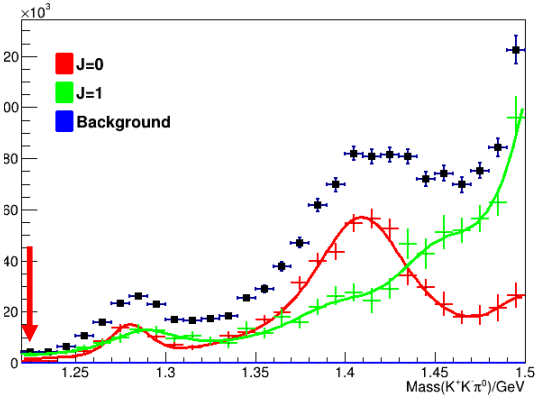
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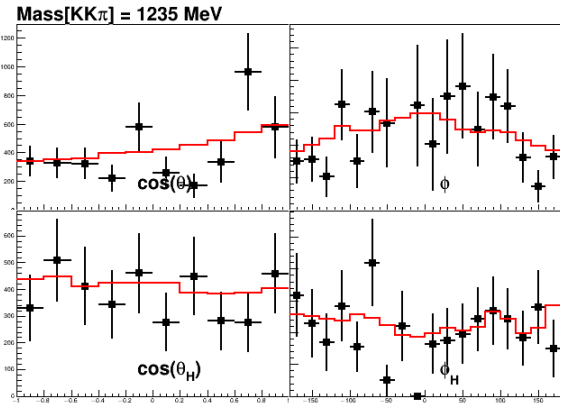
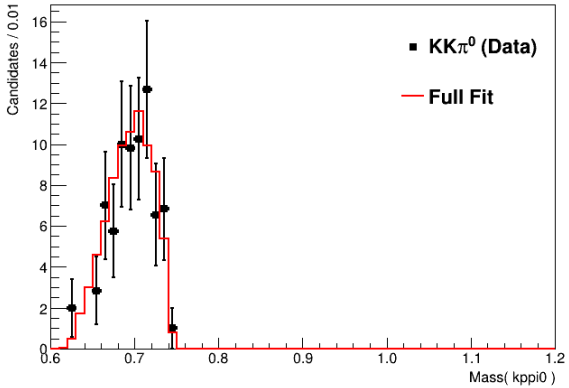

Mass[KKπ] = 1235 MeV
cos(θ)
φ
cos(θ_H)
φ_H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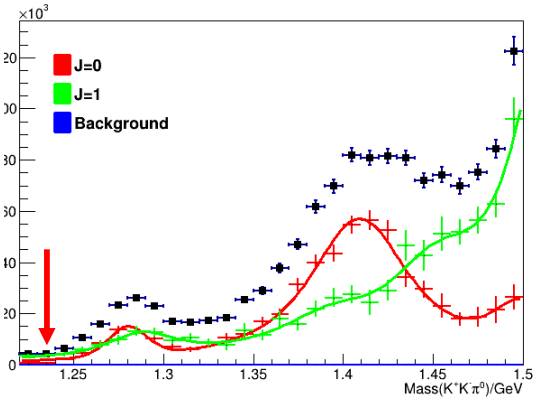
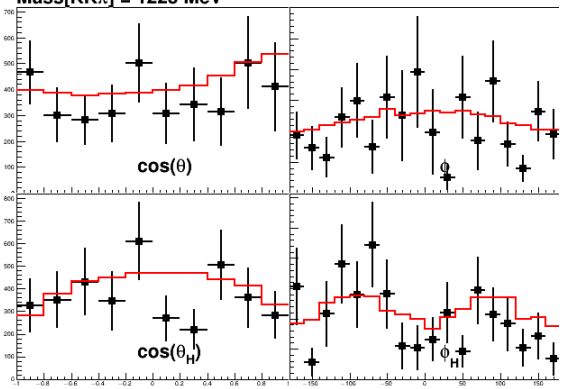
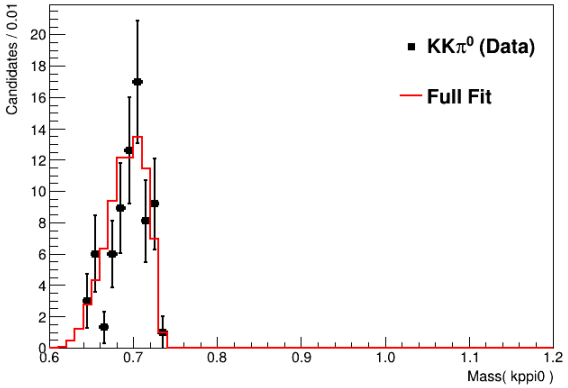
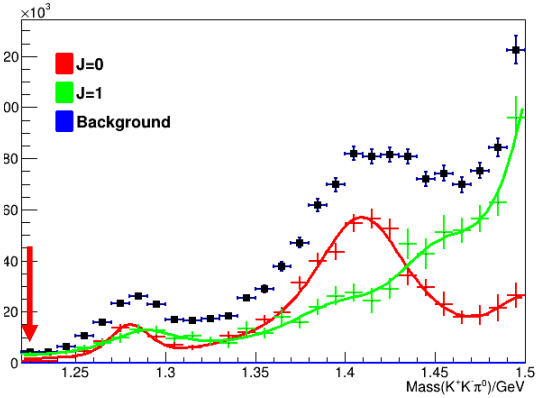

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

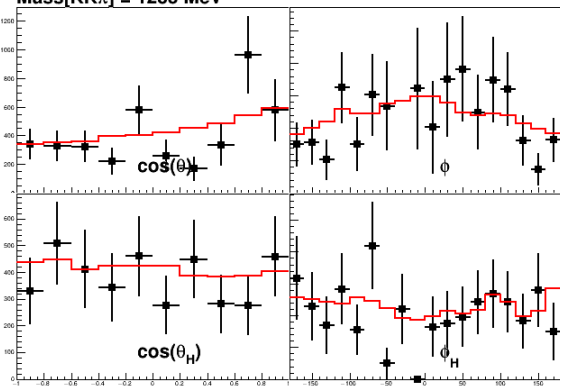
Mass[KKπ] = 1225 MeV

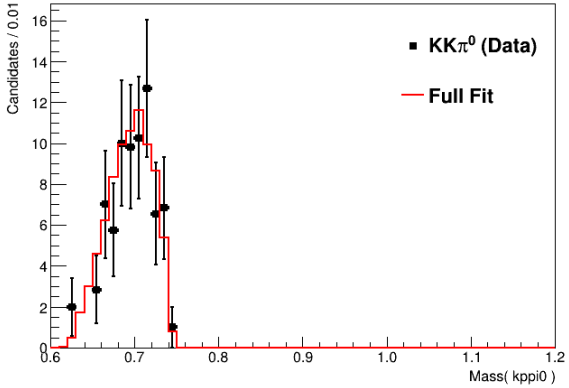


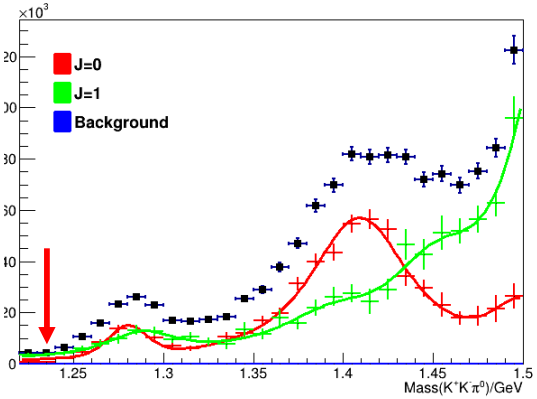




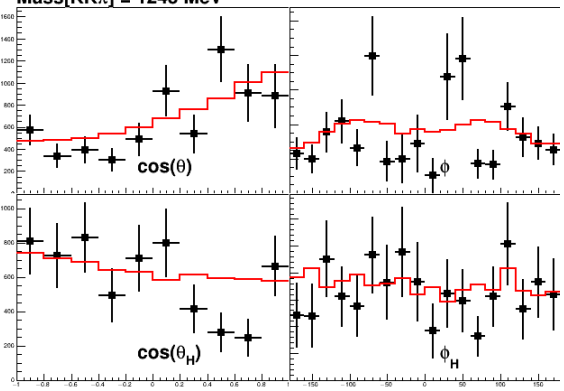
Mass[KKπ] = 1235 MeV

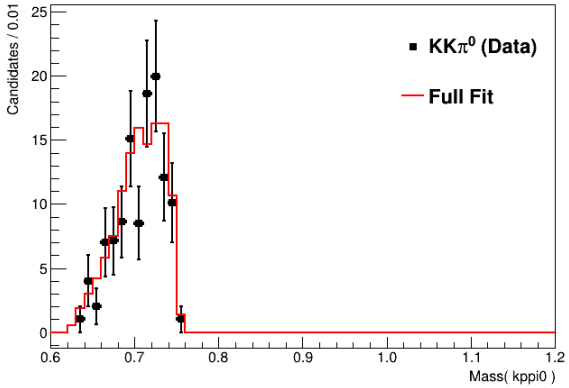


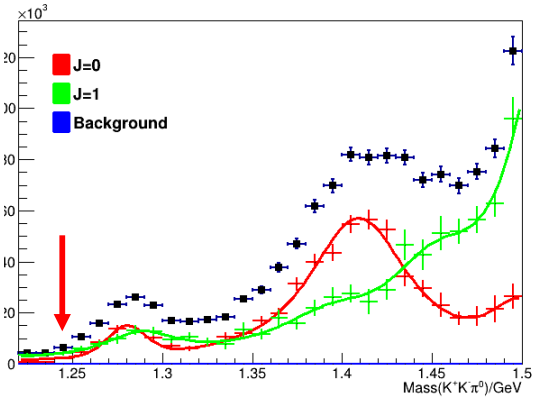




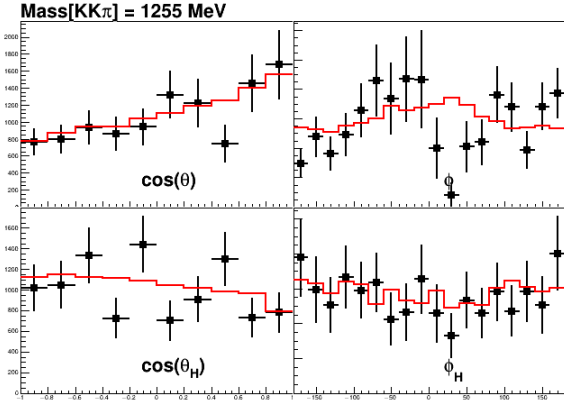
Mass[KKπ] = 1245 MeV

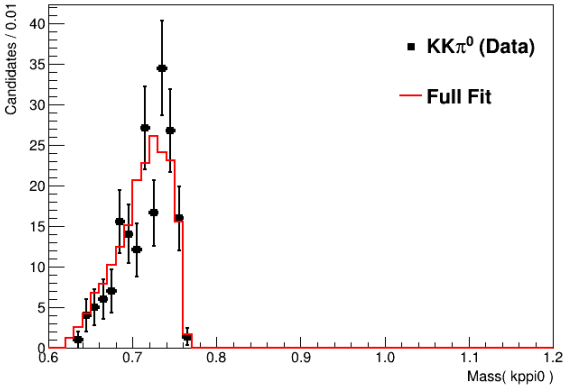


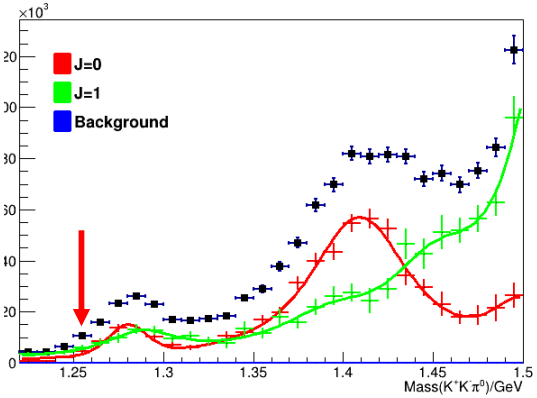




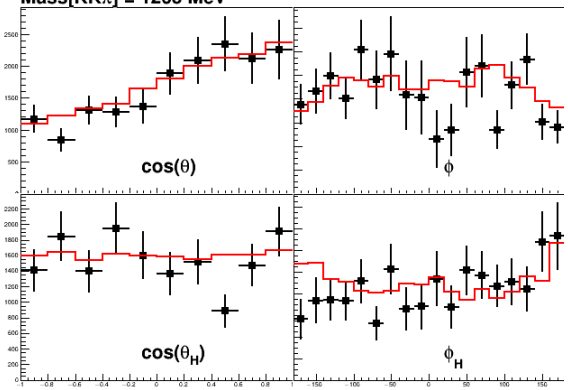
Mass[KKπ] = 1255 MeV

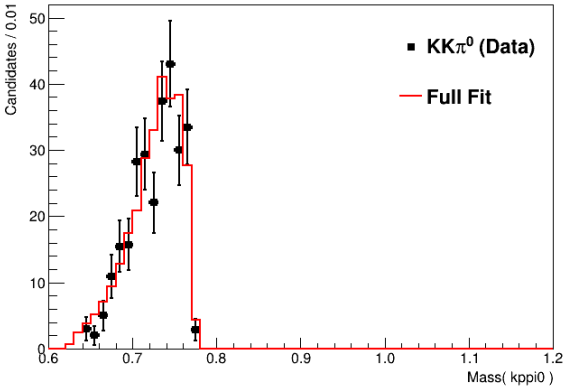


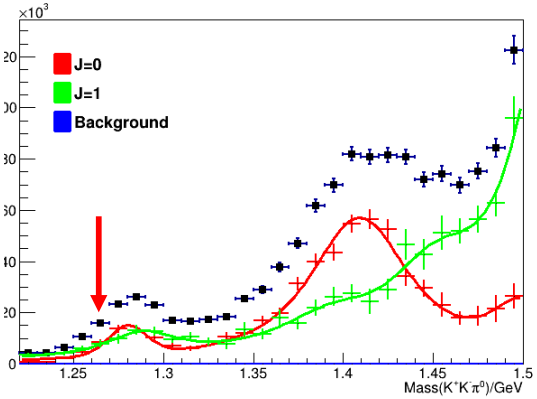




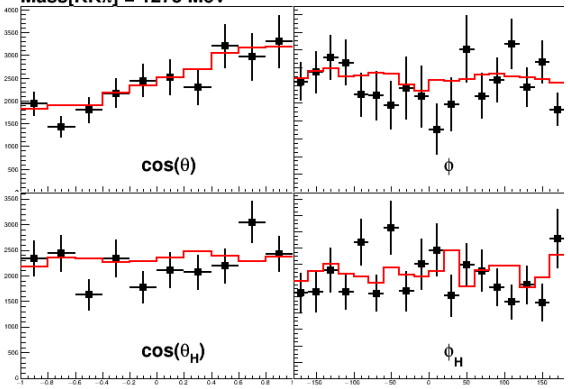
Mass[KKπ] = 1265 MeV

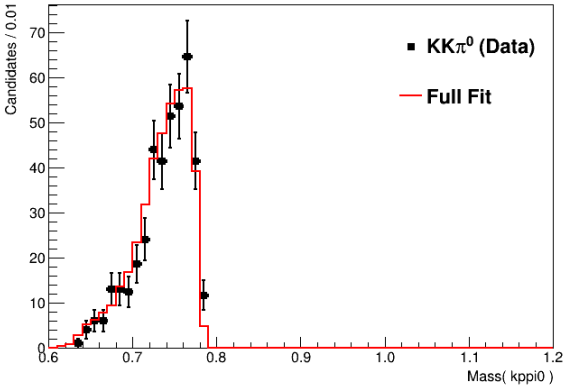


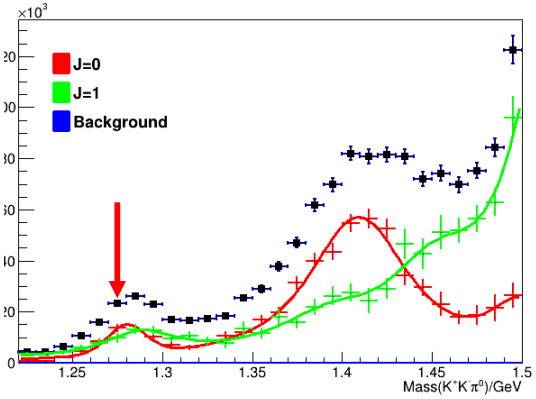




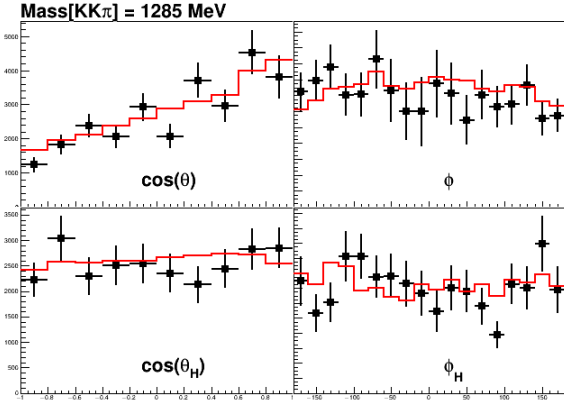
Mass[KKπ] = 1275 MeV

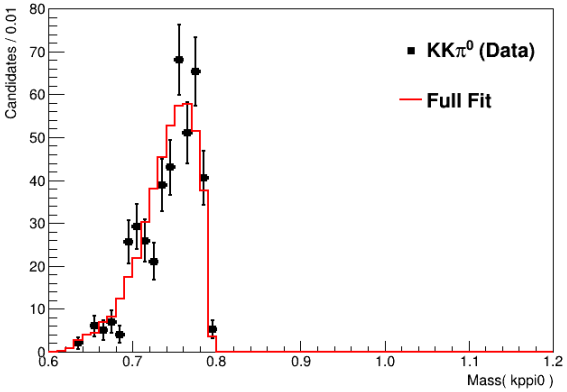


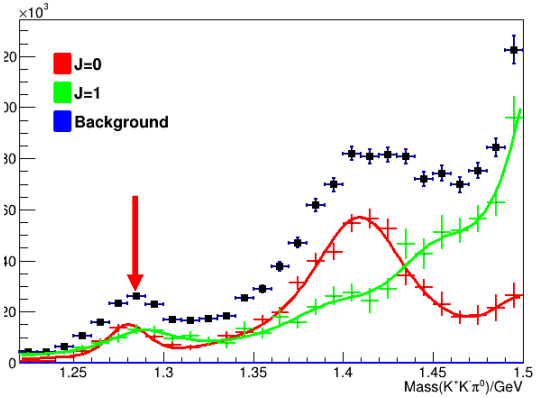




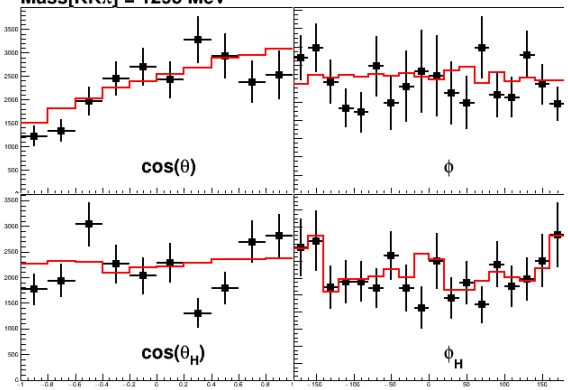
Mass[KKπ] = 1285 MeV

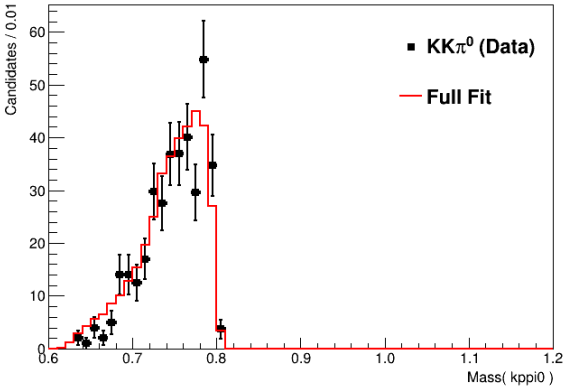


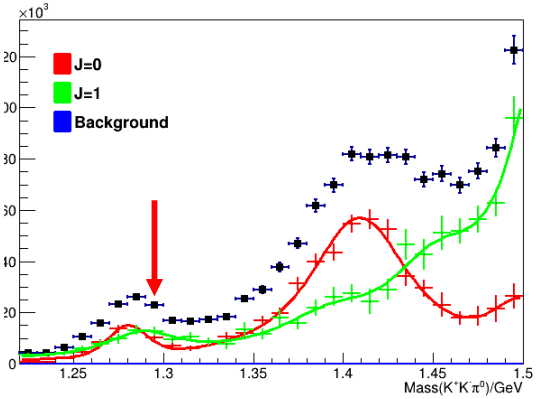




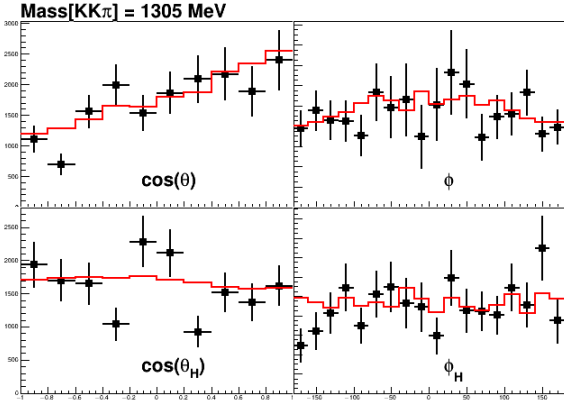
Mass[KKπ] = 1295 MeV

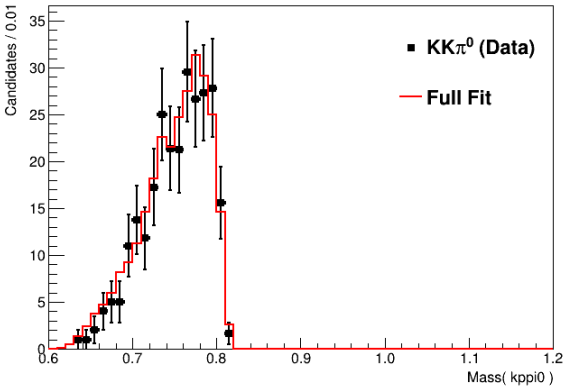


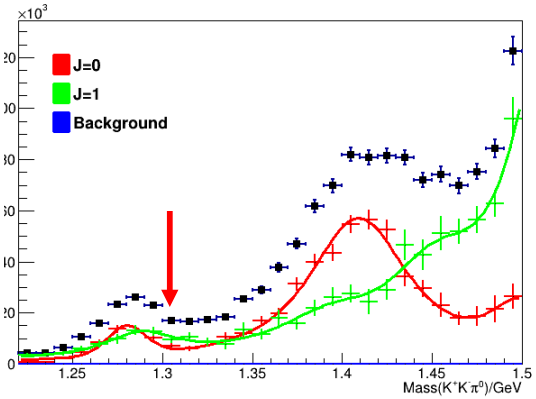


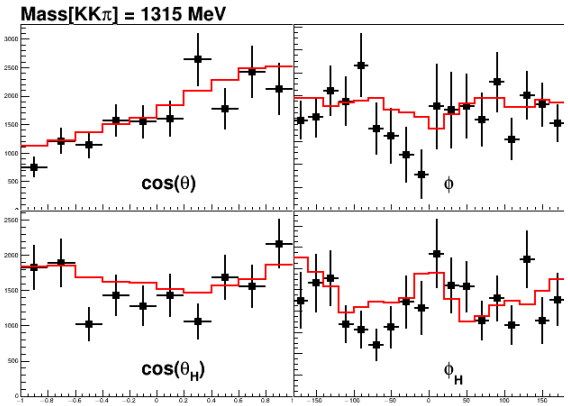


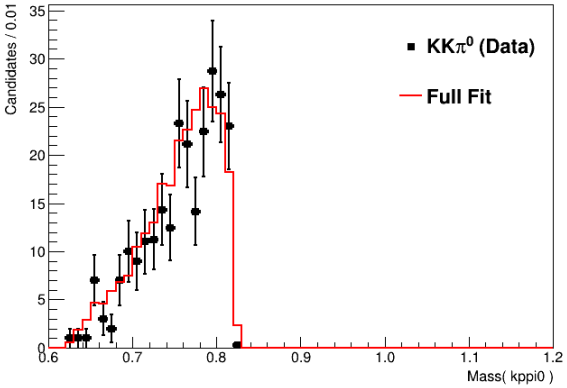
Mass[KKπ] = 1305 MeV

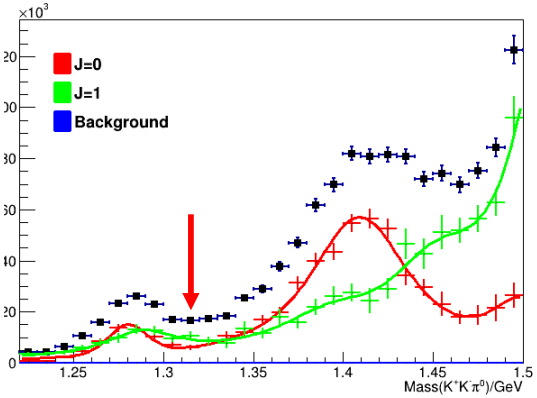


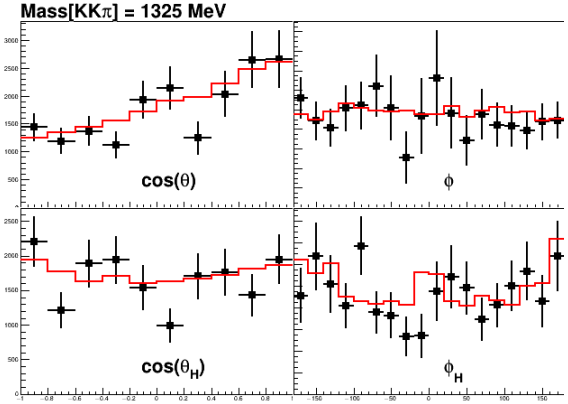


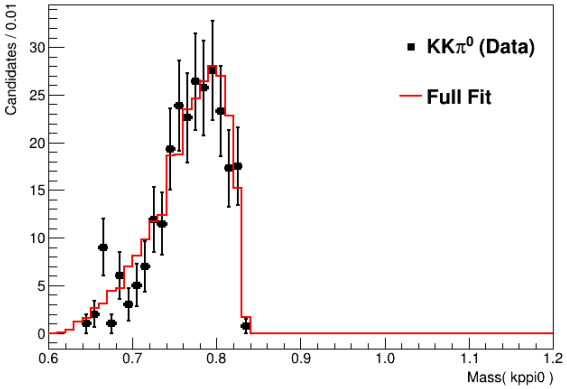



Mass[KKπ] = 1315 MeV
cos(θ)
φ
cos(θ_H)
φ_H


Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)


×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV


Mass[KKπ] = 1325 MeV
cos(θ)
φ
cos(θ_H)
φ_H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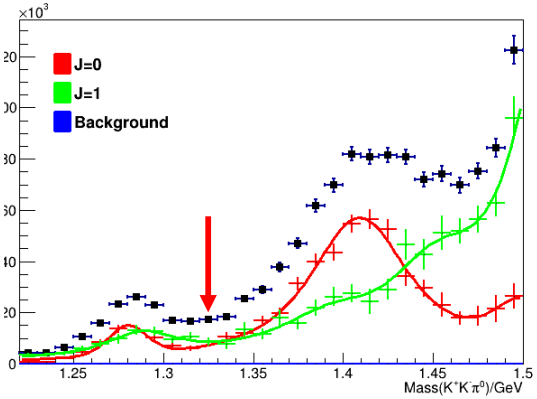
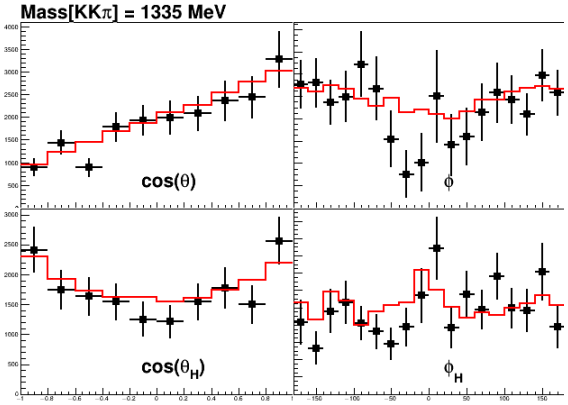
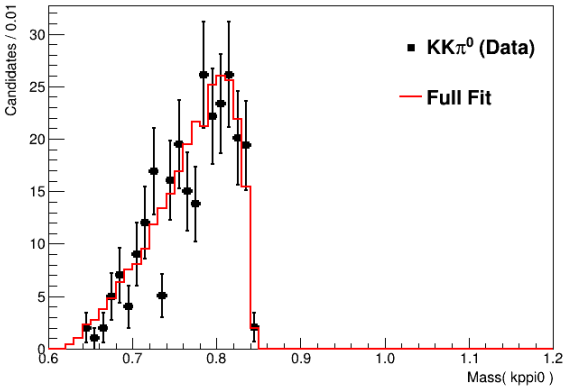
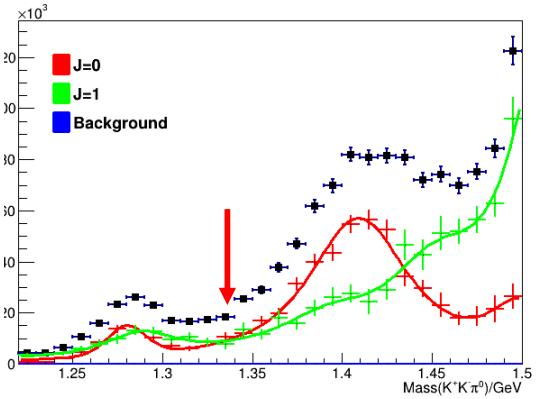
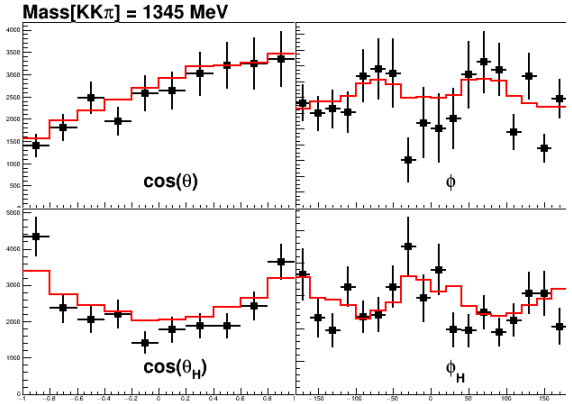
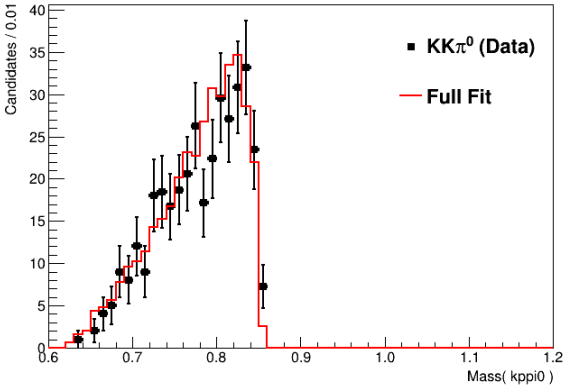

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

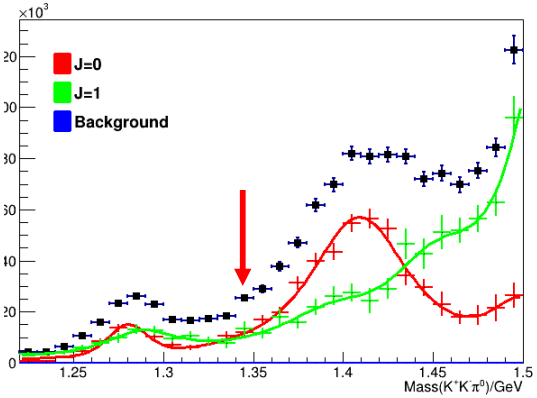

Mass[KKπ] = 1335 MeV
cos(θ)
φ
cos(θ_H)
φ_H

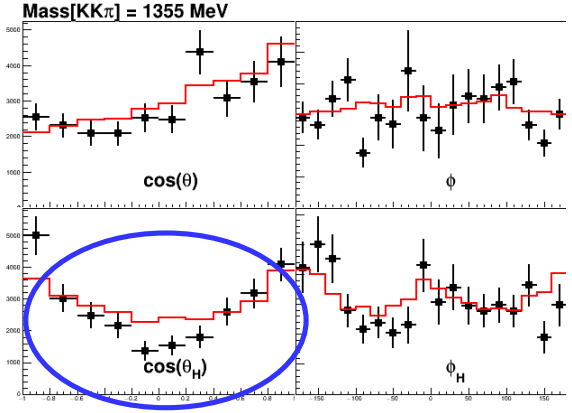

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

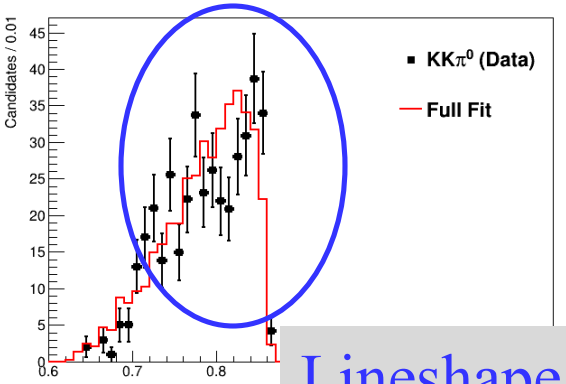

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

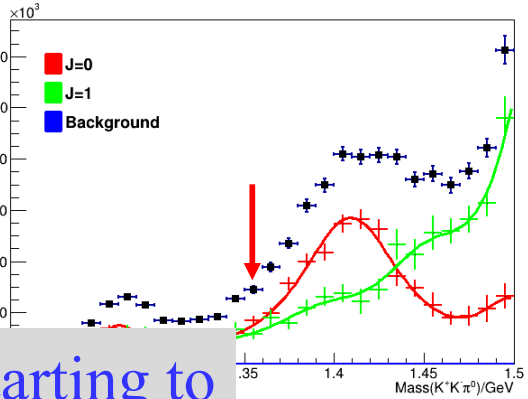


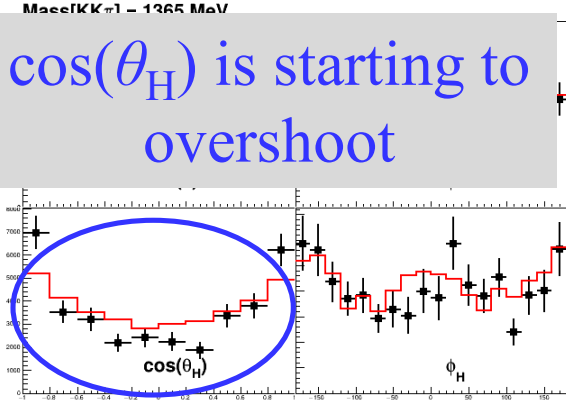


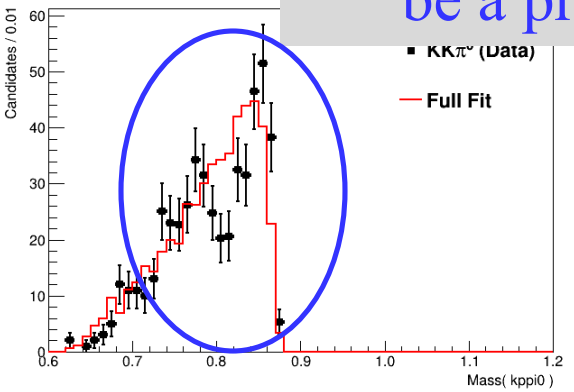


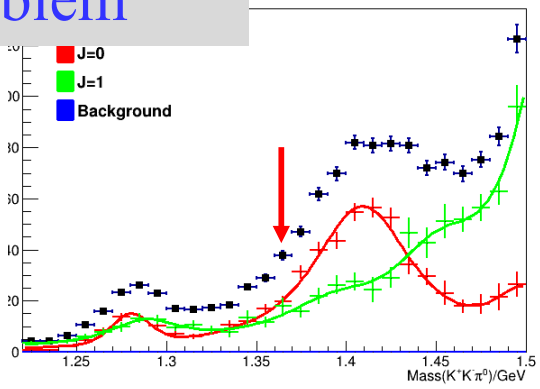






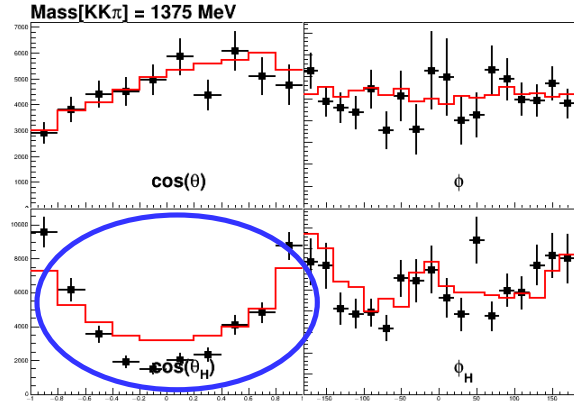


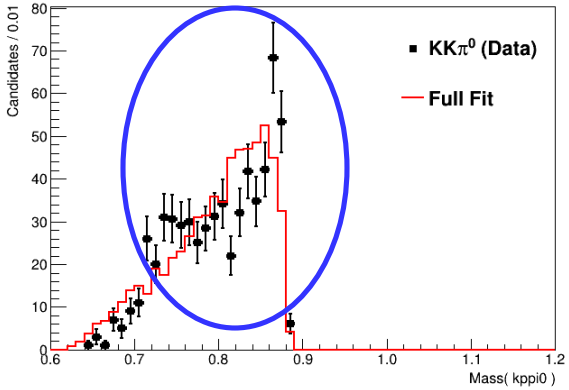


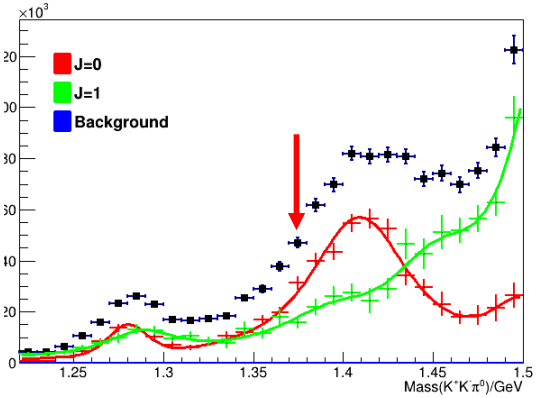


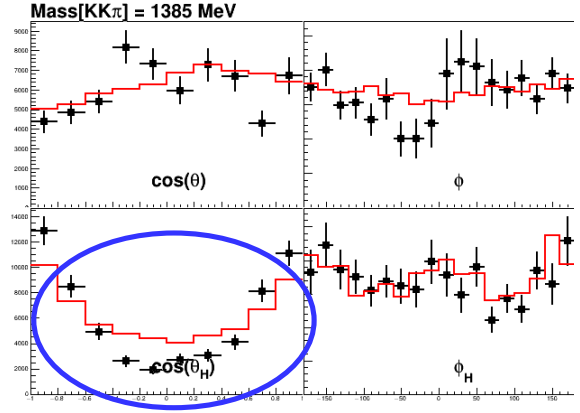
Lineshape starting to be a problem

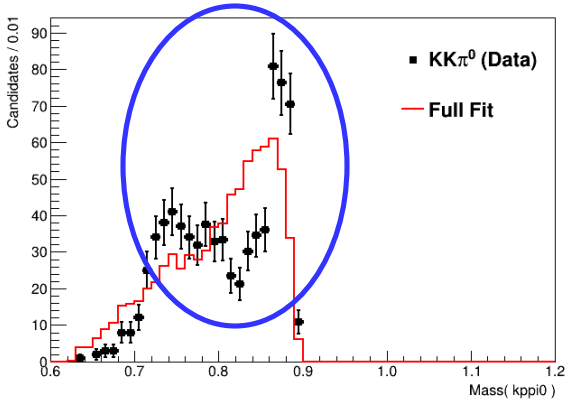
$\cos(\theta_H)$ is starting to overshoot

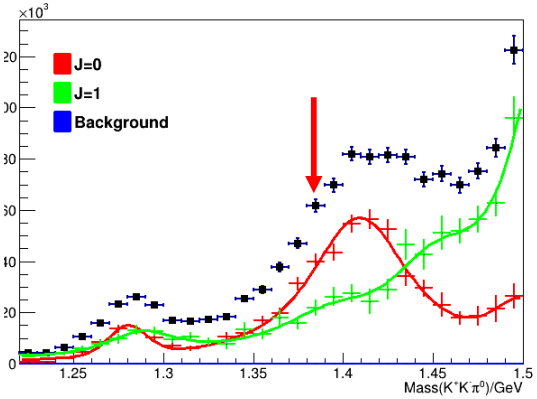

Mass[KKπ] = 1375 MeV
cos(θ)
φ
cos(θ_H)
φ_H

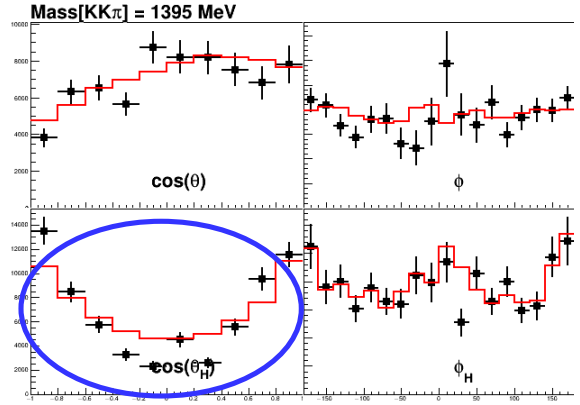

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

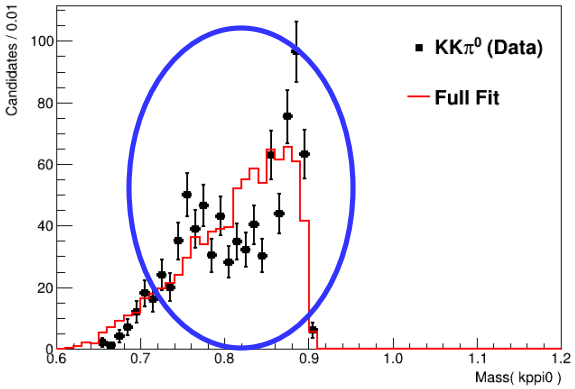

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

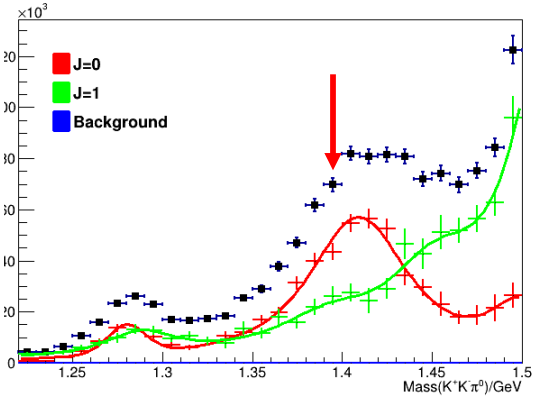

Mass[KKπ] = 1385 MeV
cos(θ)
φ
cos(θ_H)
φ_H

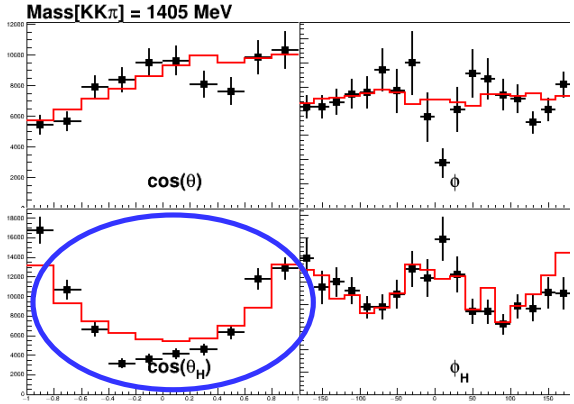

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

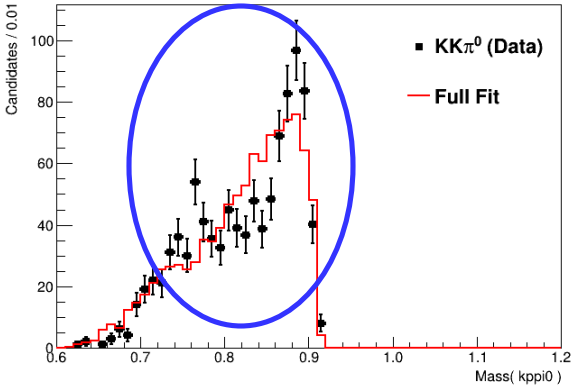

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

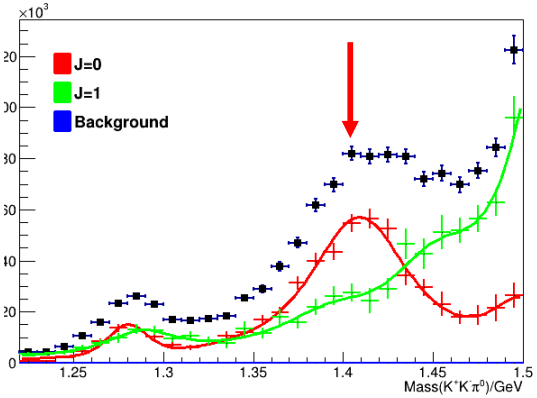

Mass[KKπ] = 1395 MeV
cos(θ)
φ
cos(θ_H)
φ_H

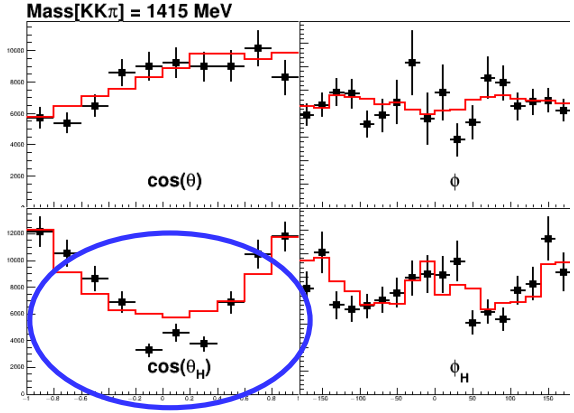

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

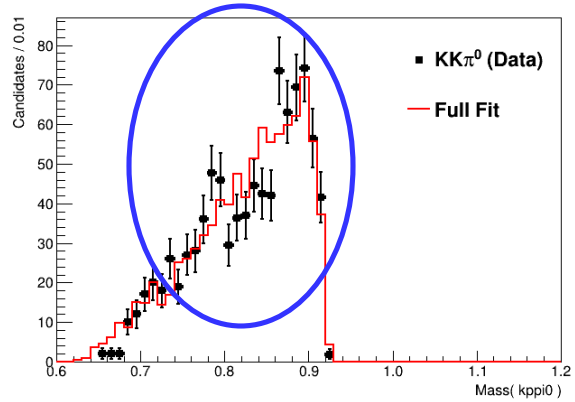

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

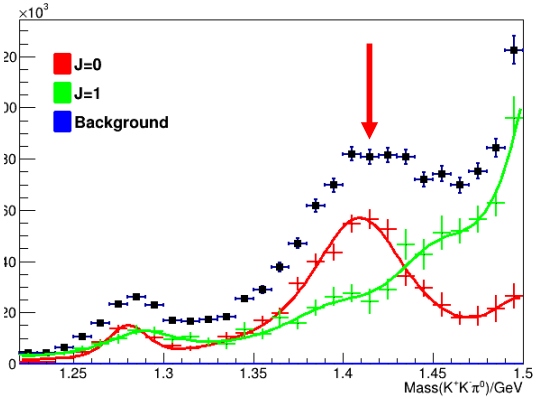

Mass[KKπ] = 1405 MeV
cos(θ)
ϕ
cos(θ_H)
ϕ_H

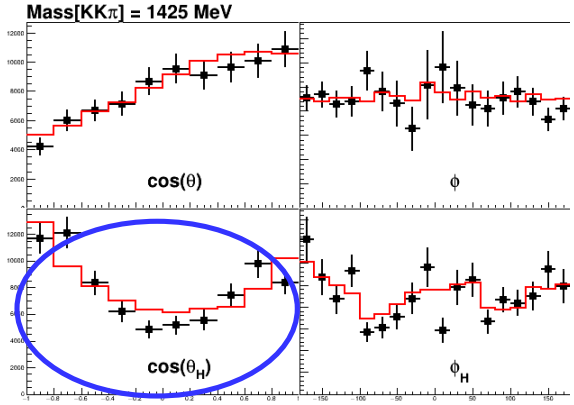

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

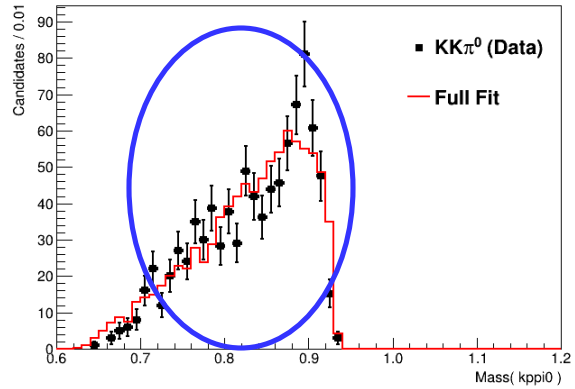

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

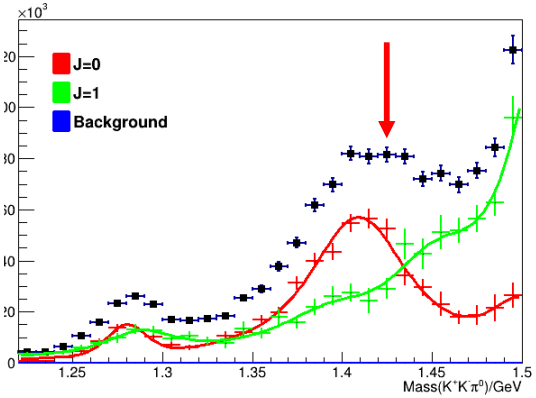

Mass[KKπ] = 1415 MeV
cos(θ)
ϕ
cos(θ_H)
ϕ_H


Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

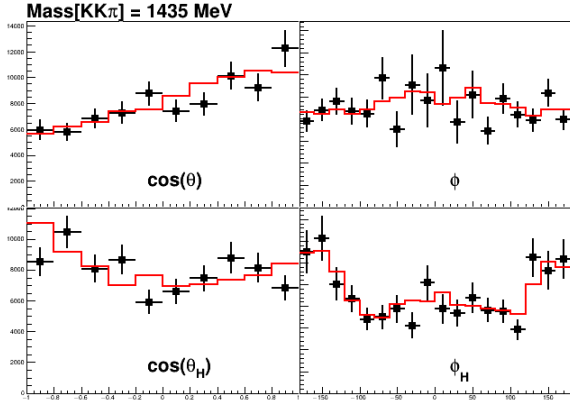

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

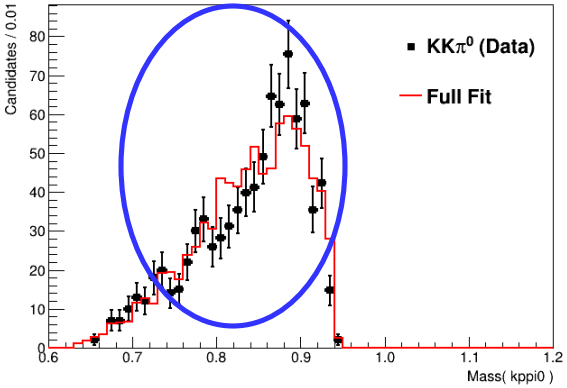

Mass[KKπ] = 1425 MeV
cos(θ)
ϕ
cos(θ_H)
ϕ_H

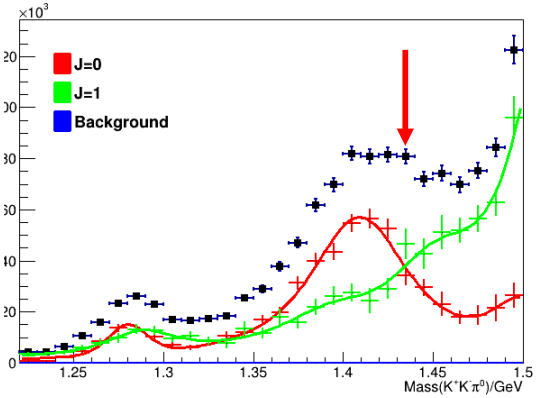

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)


×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

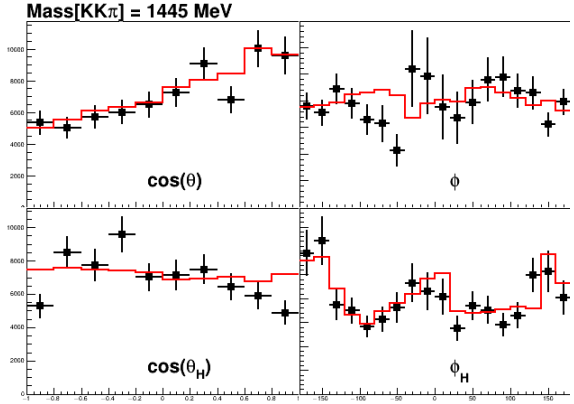
Mass[KKπ] = 1435 MeV

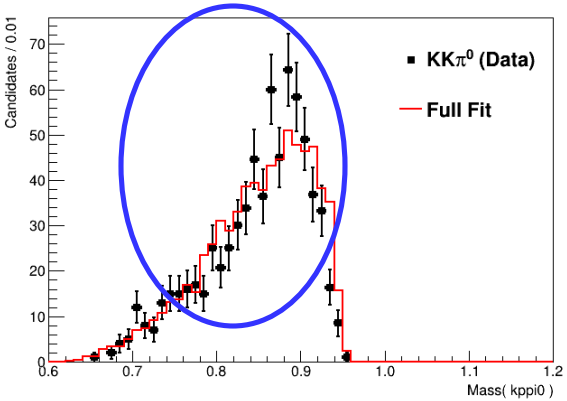


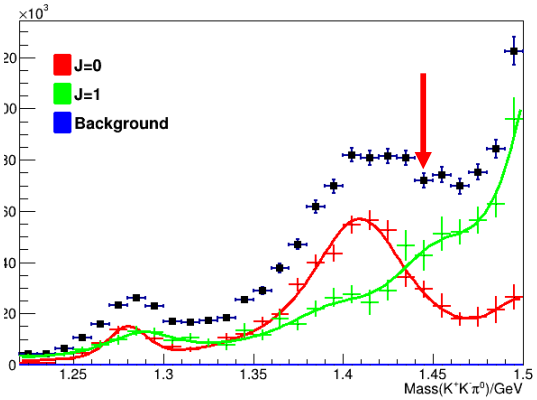




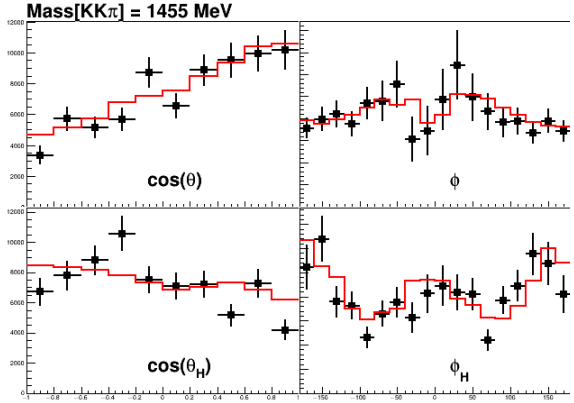
Mass[KKπ] = 1445 MeV

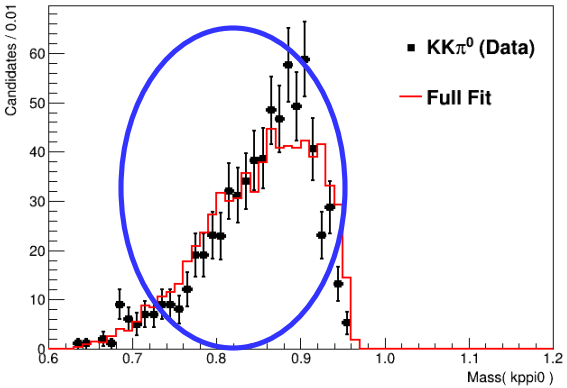


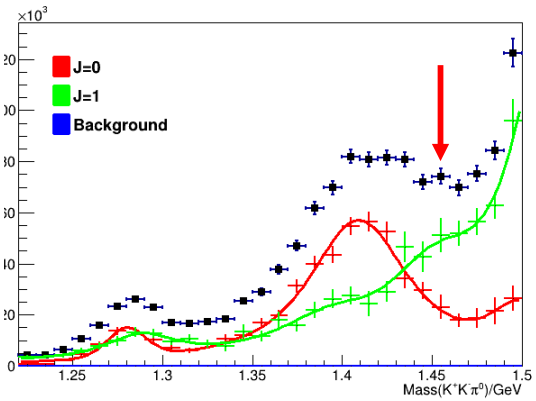




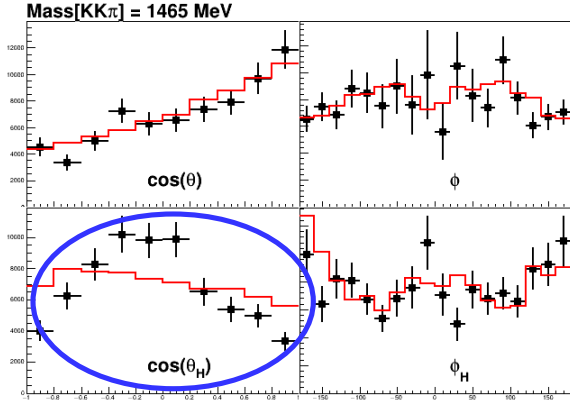
Mass[KKπ] = 1455 MeV

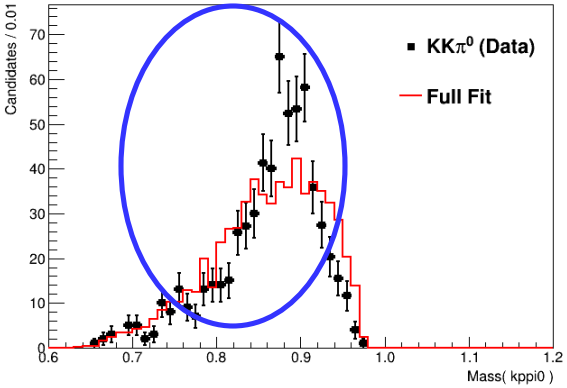


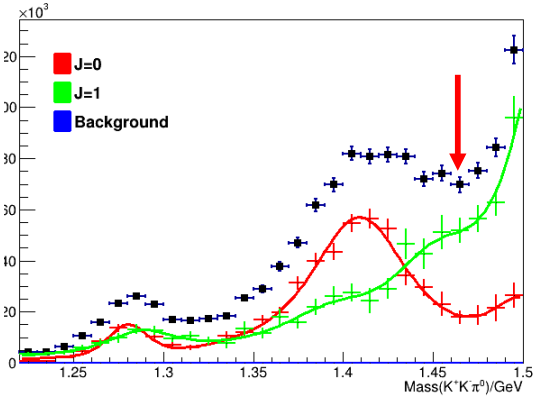




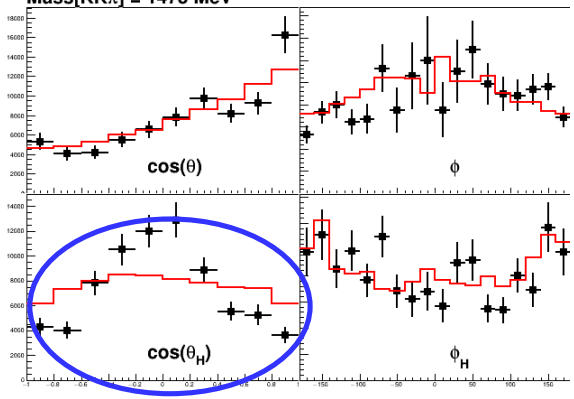
Mass[KKπ] = 1465 MeV

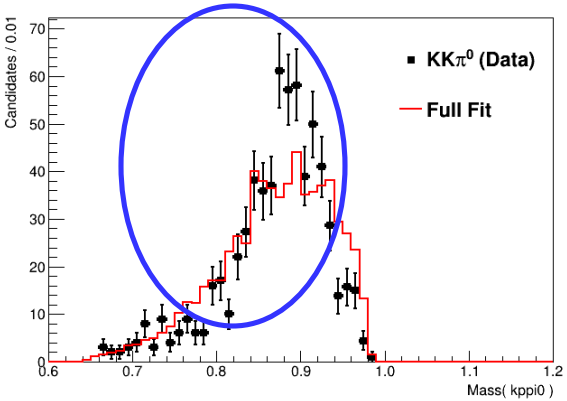


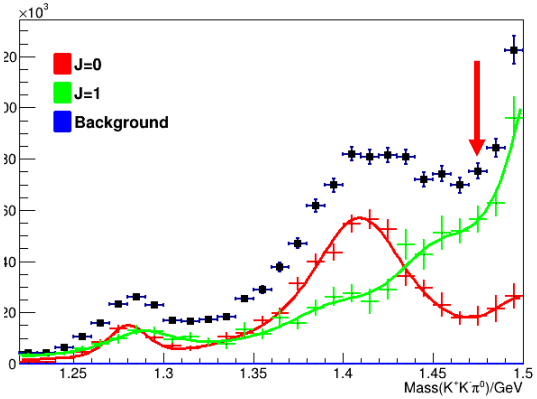




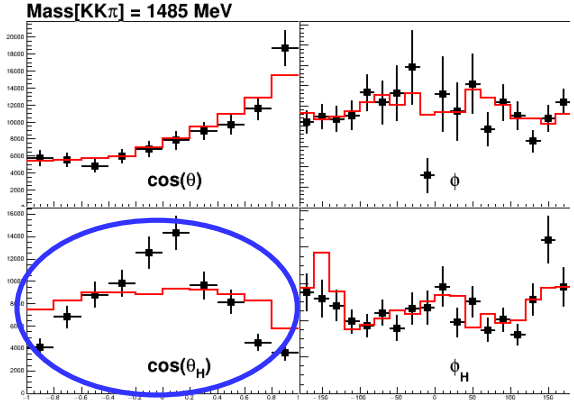
Mass[KKπ] = 1475 MeV

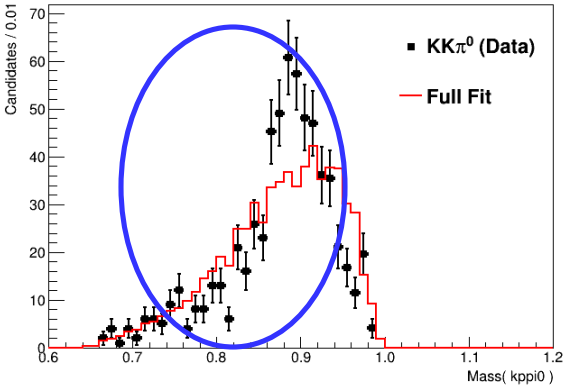


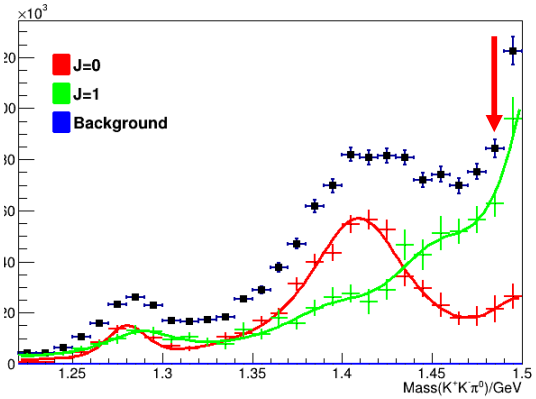


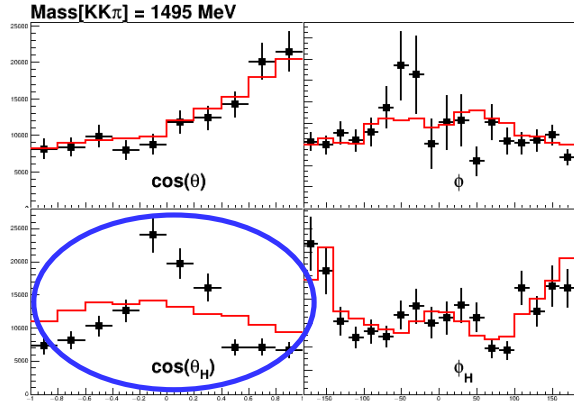


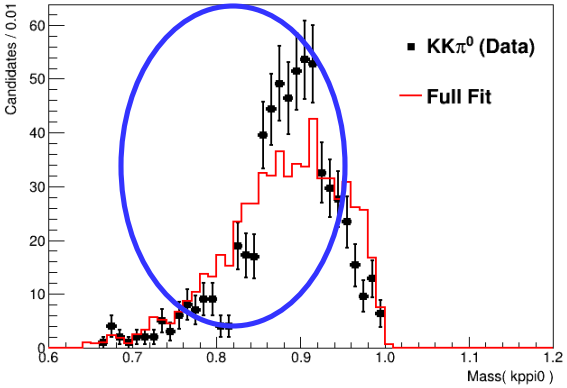
Mass[KKπ] = 1485 MeV

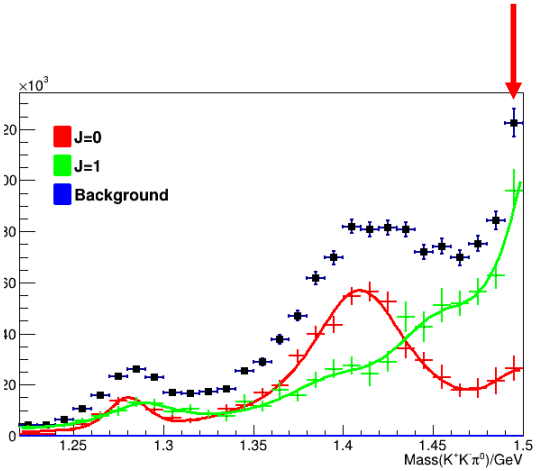







Mass[KKπ] = 1495 MeV
cos(θ)
φ
cos(θ_H)
φ_H


Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)


×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

Mass-independent PWA of $KK\pi$

- Next: Showing three rounds of fits

Mass-independent PWA of $KK\pi$

- Next: Showing three rounds of fits

1st includes:

- $J=0^-$
  - $(KK)_{S\text{-}phsp}\pi$

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

Mass-independent PWA of $KK\pi$

- Next: Showing three rounds of fits

1st includes:

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

2nd includes:

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

Mass-independent PWA of $KK\pi$

- Next: Showing three rounds of fits

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

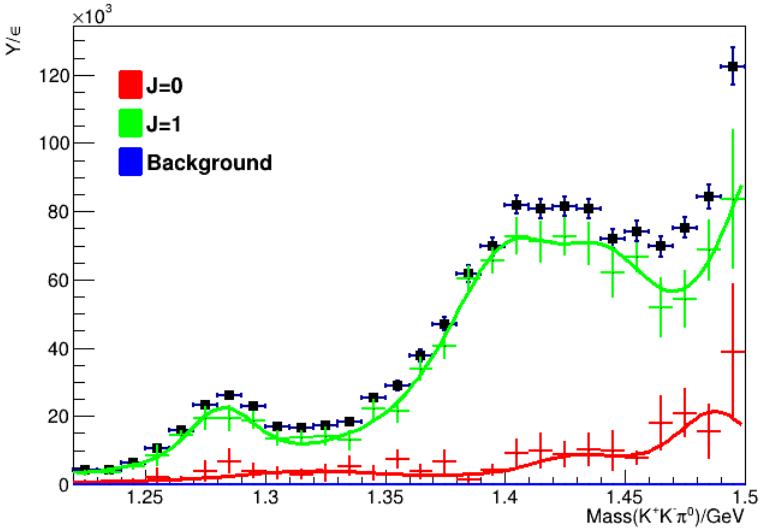
2nd includes:
- $J=0^-$
  - $(KK)_{S\text{-}phsp}\pi$
- $J=1^+$
  - $(KK)_{S\text{-}phsp}\pi$
  - $(K\pi)_{P\text{-}phsp}K$
  - K^*K

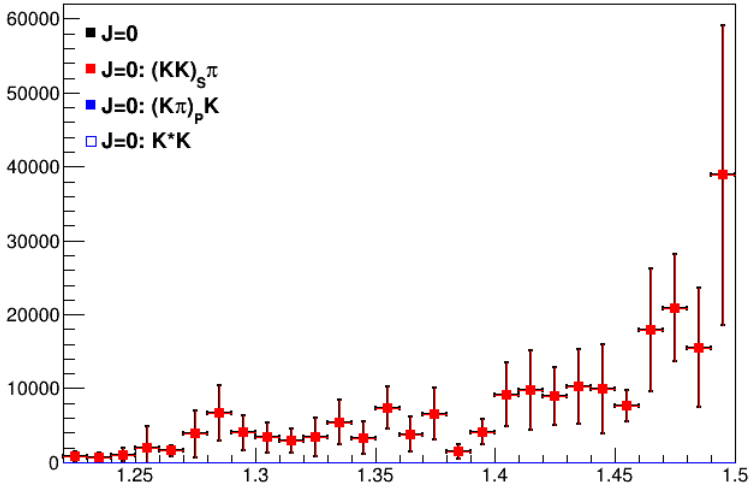
3rd includes:
- $J=0^-$
  - $(KK)_{S\text{-}phsp}\pi$
  - $(K\pi)_{P\text{-}phsp}K$
  - K^*K
- $J=1^+$
  - $(KK)_{S\text{-}phsp}\pi$
  - $(K\pi)_{P\text{-}phsp}K$
  - K^*K

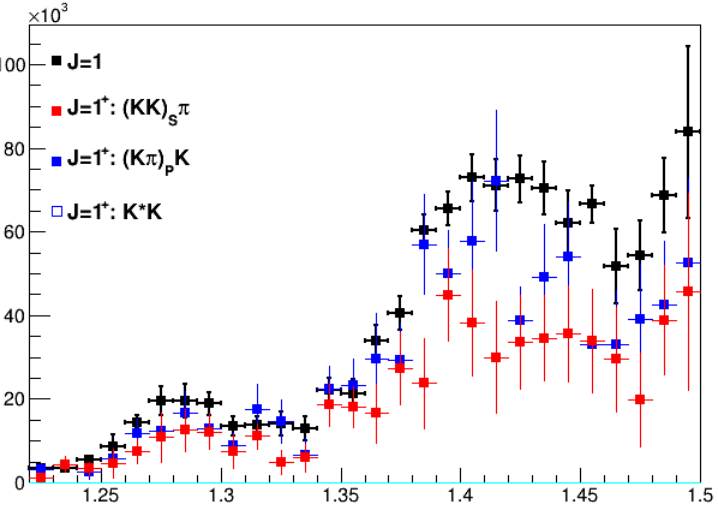
Mass-independent PWA of $KK\pi$

Included:

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



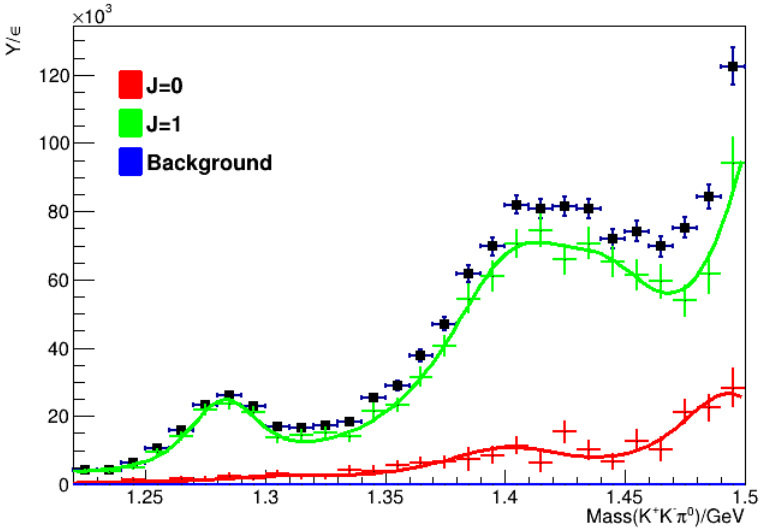


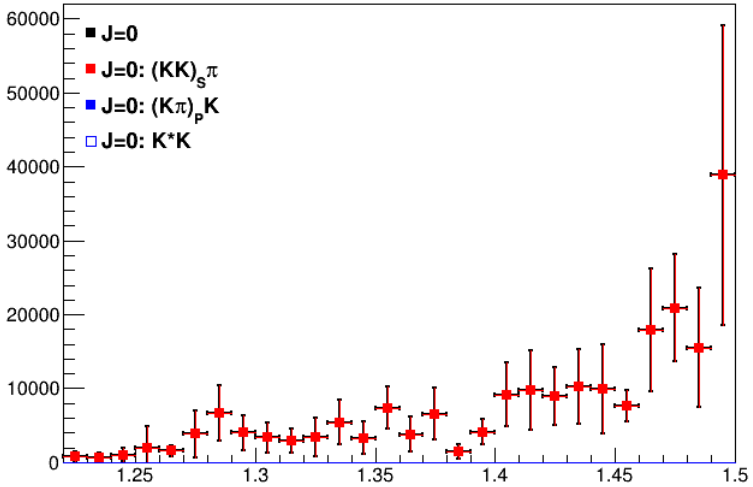


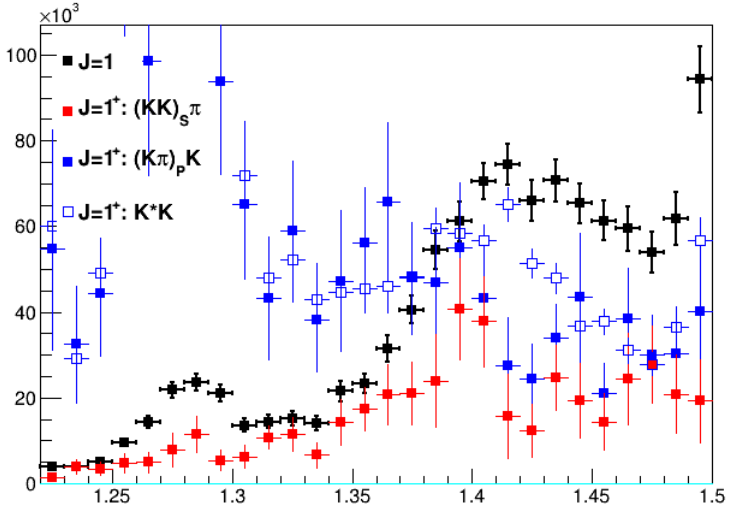
Mass-independent PWA of $KK\pi$

Included:

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

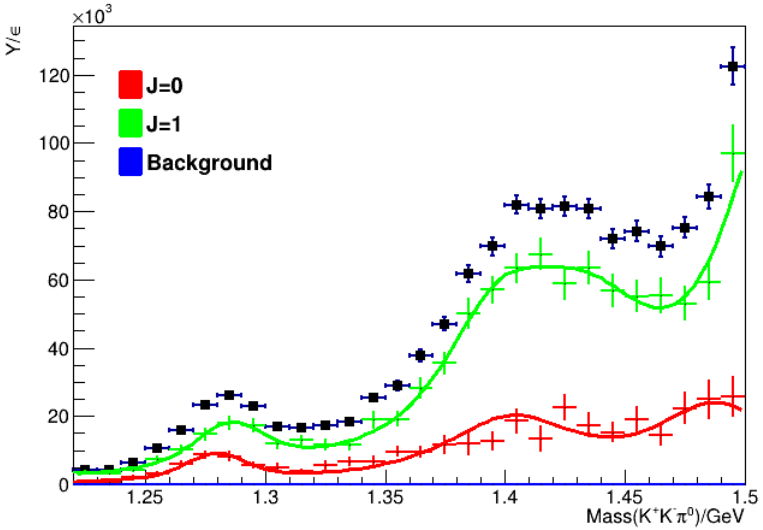


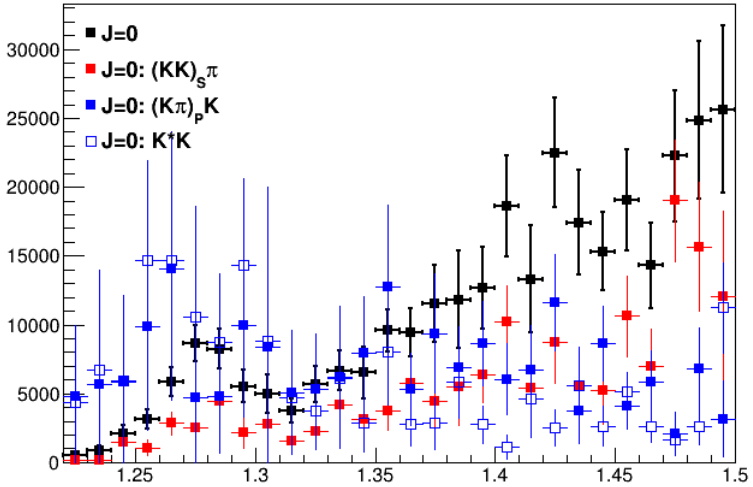


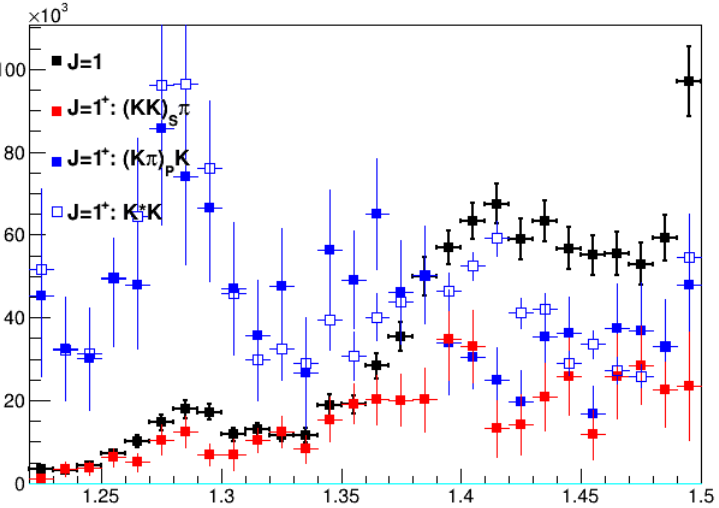


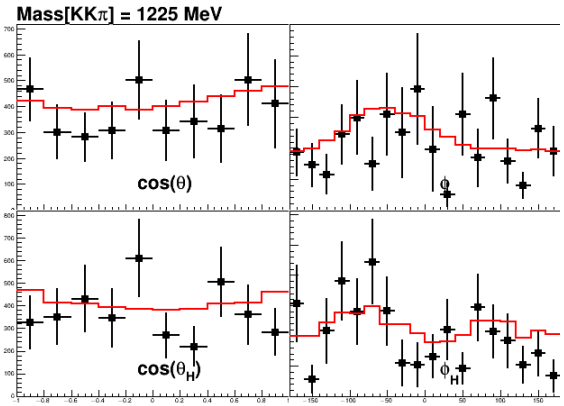
Included:

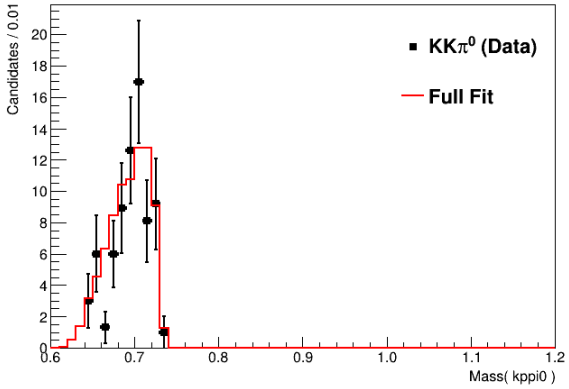
- $J=0^-$
  - $(KK)_{S\text{-}phsp}\pi$
  - $(K\pi)_{P\text{-}phsp}K$
  - K^*K
- $J=1^+$
  - $(KK)_{S\text{-}phsp}\pi$
  - $(K\pi)_{P\text{-}phsp}K$
  - K^*K

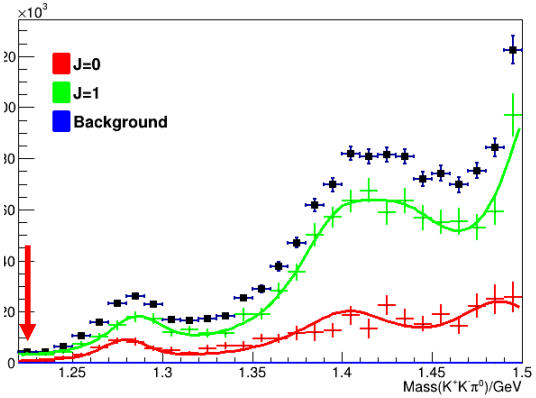


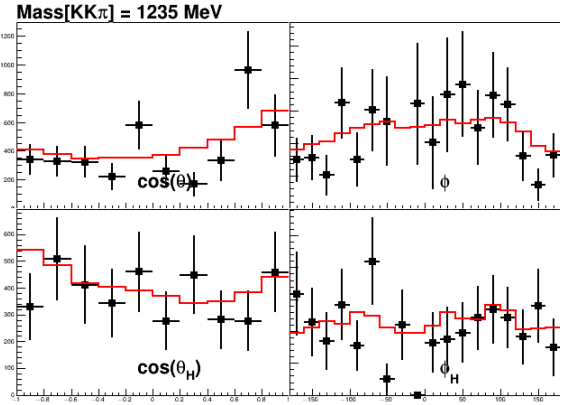


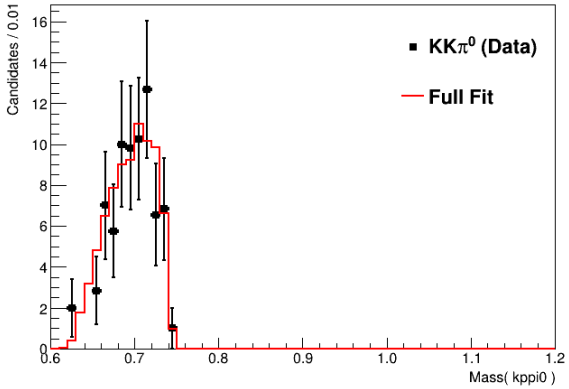


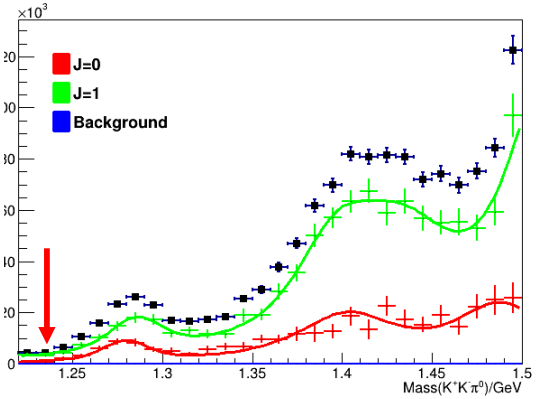

Mass[KKπ] = 1225 MeV
cos(θ)
φ
cos(θ_H)
φ_H

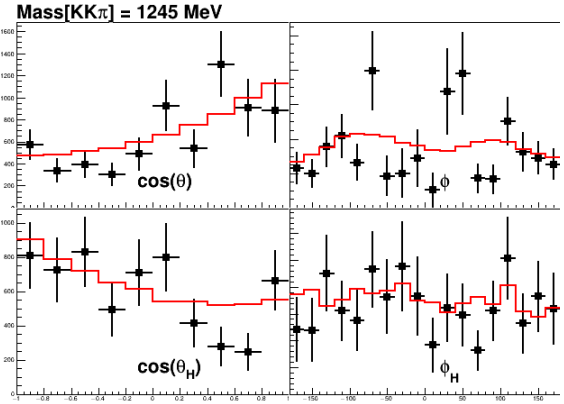

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

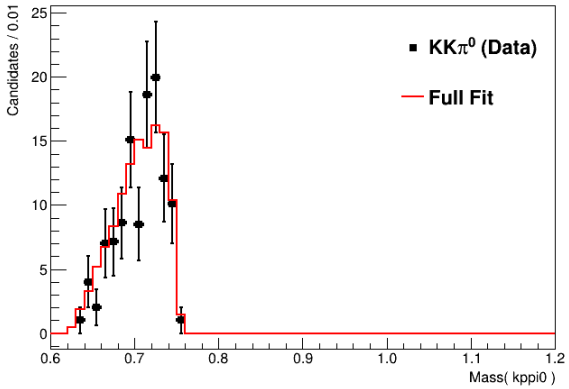

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

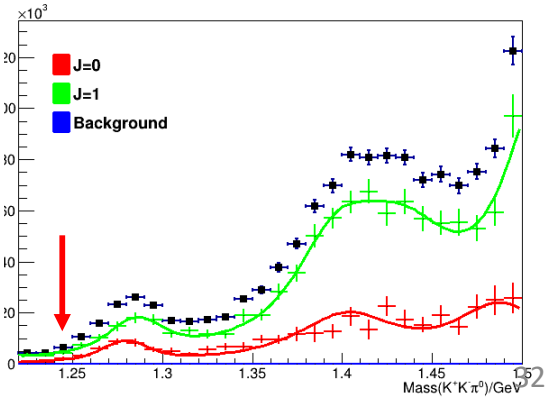

Mass[KKπ] = 1235 MeV
cos(θ)
φ
cos(θ_H)
φ_H

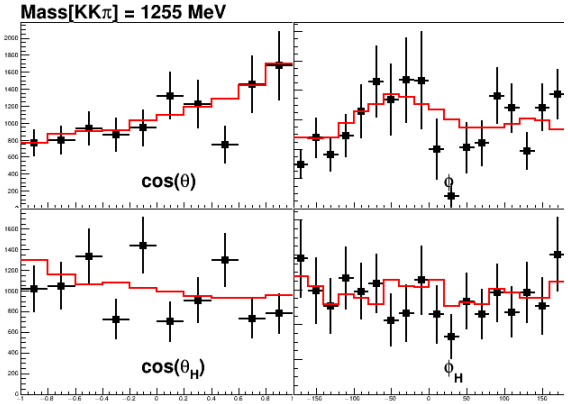

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

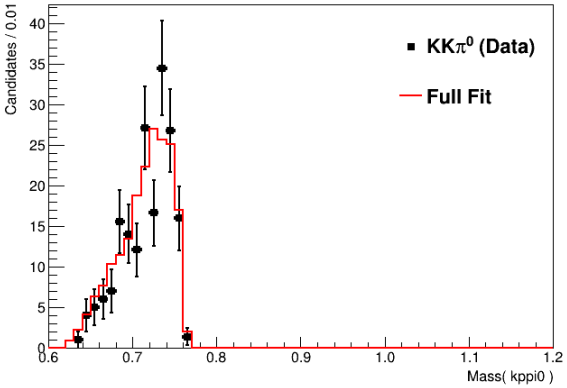

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

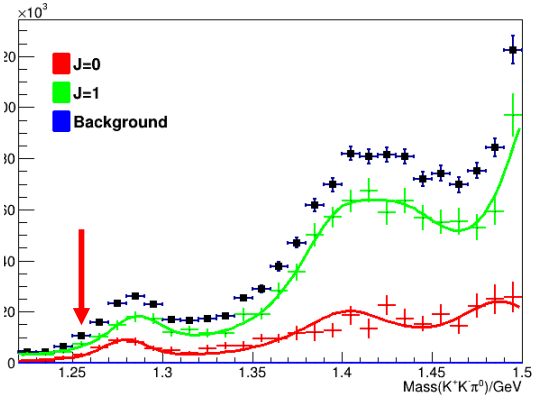

Mass[KKπ] = 1245 MeV
cos(θ)
φ
cos(θ_H)
φ_H

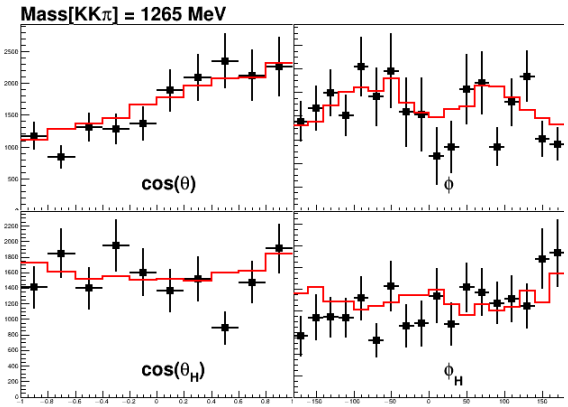

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

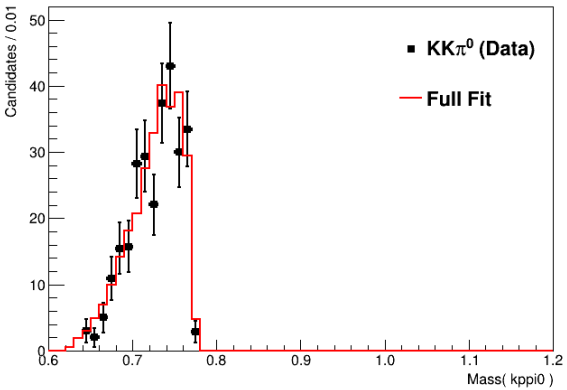

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

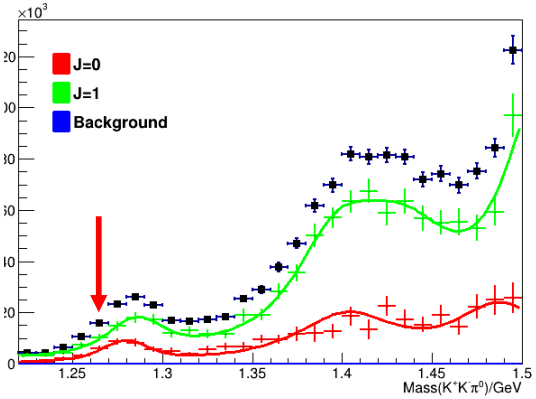

Mass[KKπ] = 1255 MeV
cos(θ)
φ
cos(θ_H)
φ_H

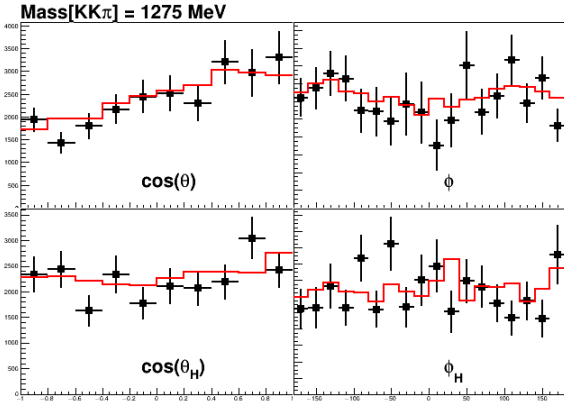

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

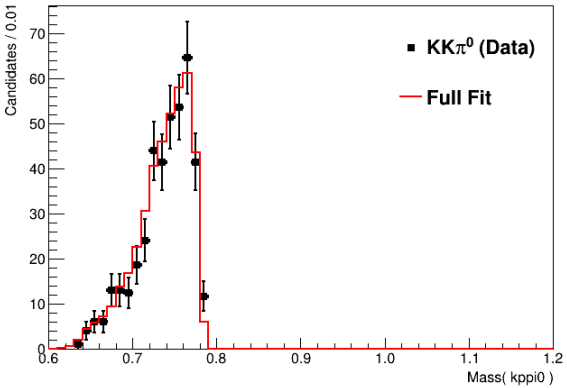

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

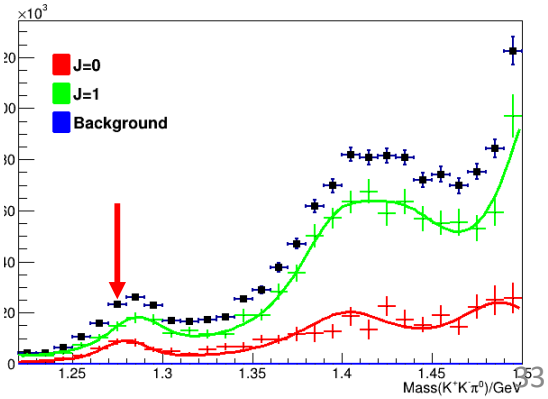

Mass[KKπ] = 1265 MeV
cos(θ)
φ
cos(θ_H)
φ_H

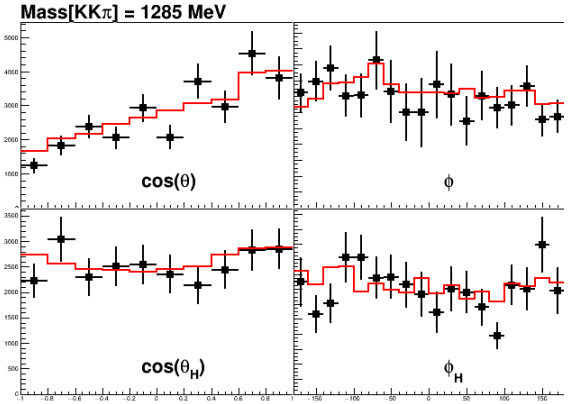

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

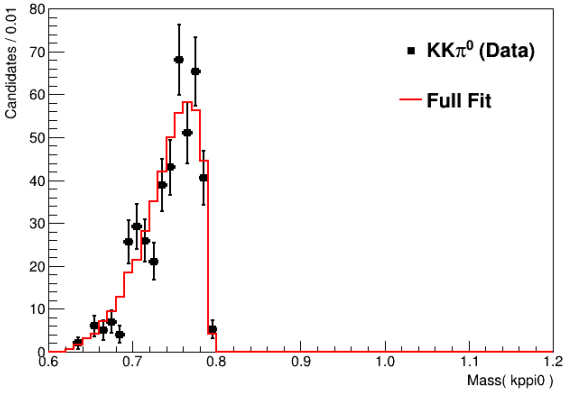

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

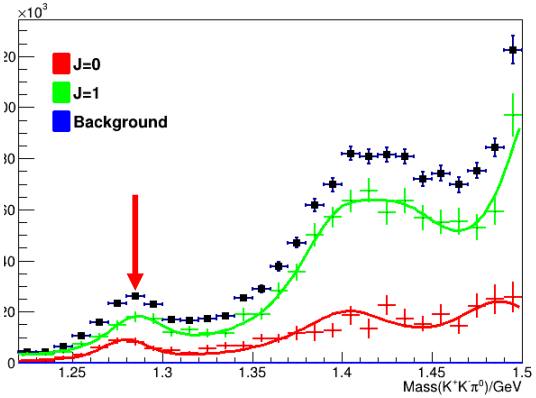

Mass[KKπ] = 1275 MeV
cos(θ)
φ
cos(θ_H)
φ_H

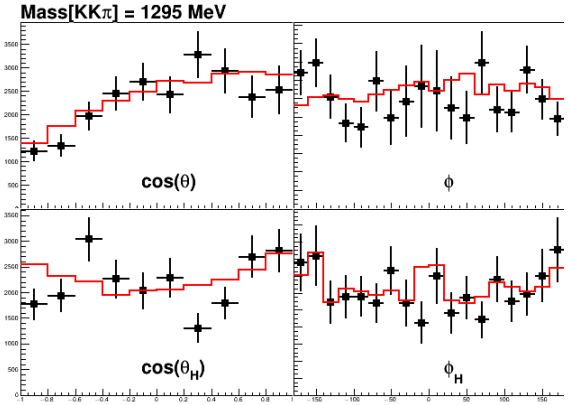

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

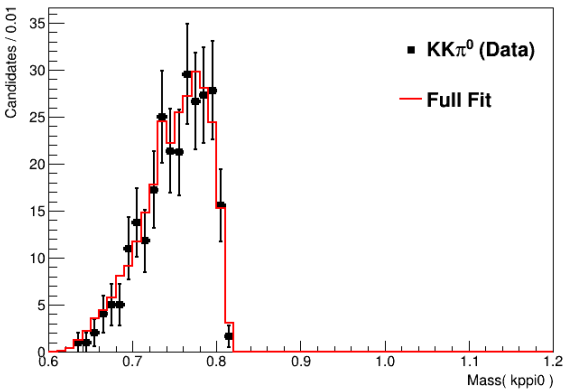

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

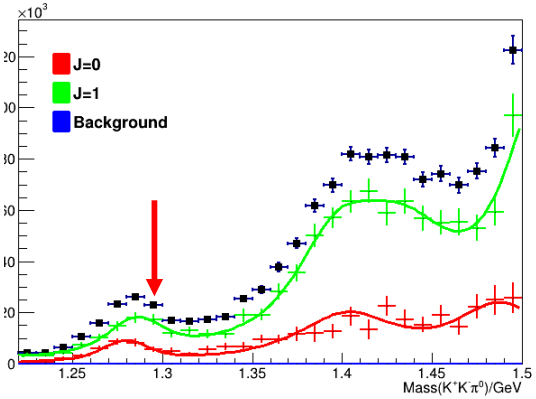

Mass[KKπ] = 1285 MeV
cos(θ)
φ
cos(θ_H)
φ_H

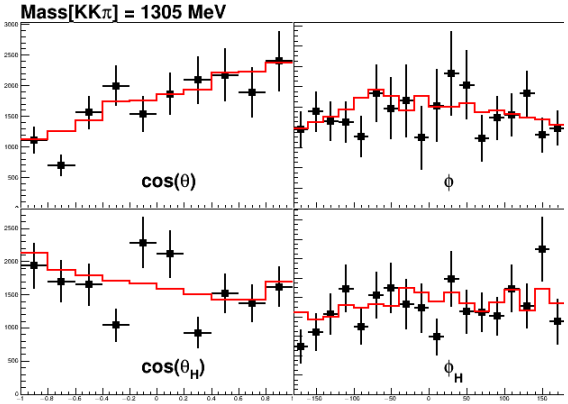

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

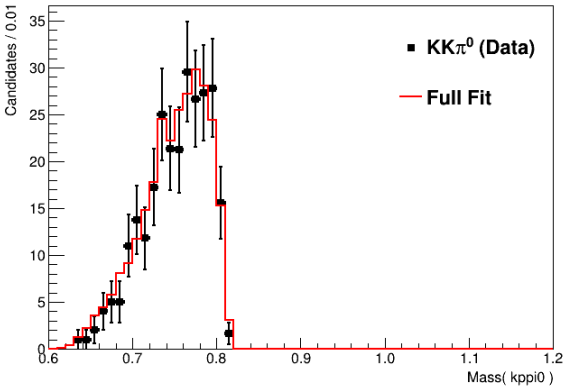

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

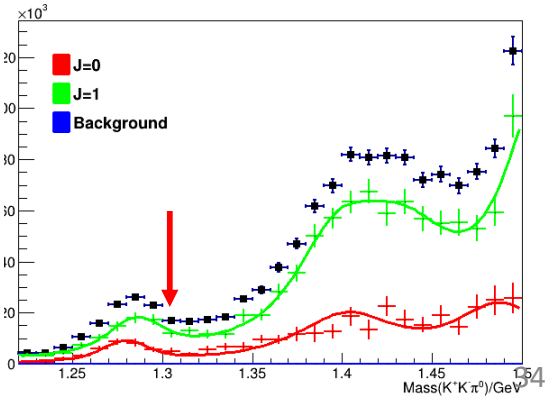

Mass[KKπ] = 1295 MeV
cos(θ)
φ
cos(θ_H)
φ_H

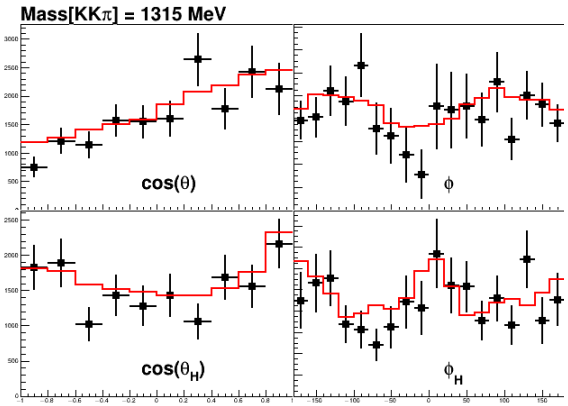

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

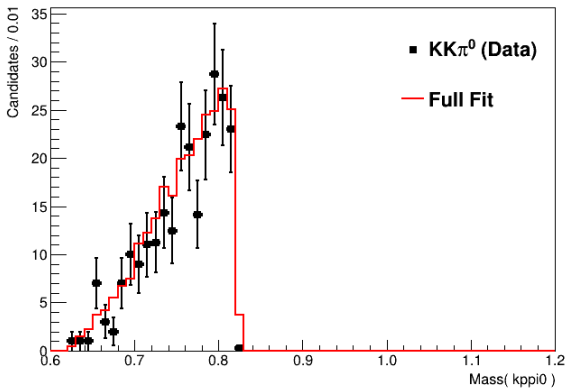

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

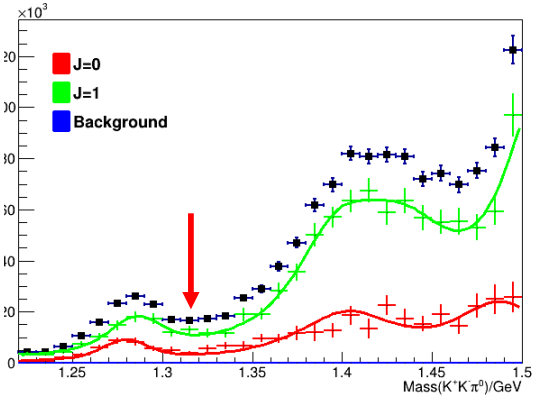

Mass[KKπ] = 1305 MeV
cos(θ)
φ
cos(θ_H)
φ_H

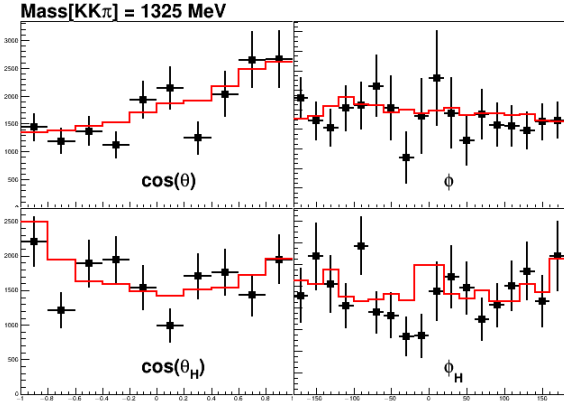

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

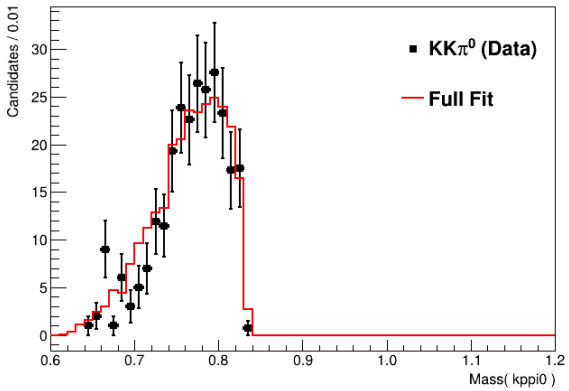

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

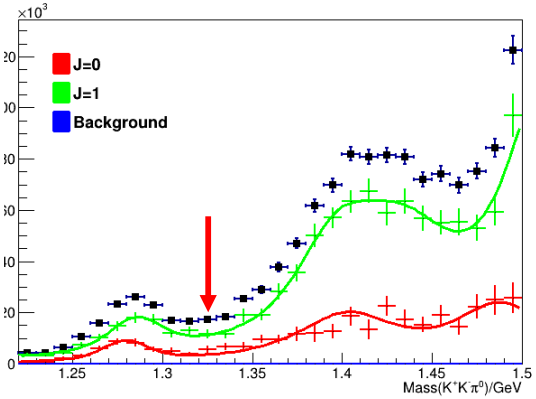

Mass[KKπ] = 1315 MeV
cos(θ)
φ
cos(θ_H)
φ_H

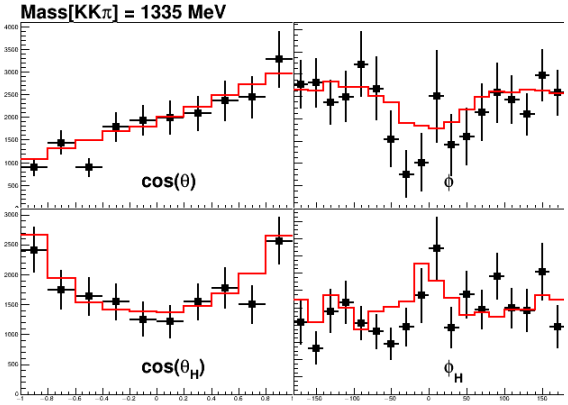

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

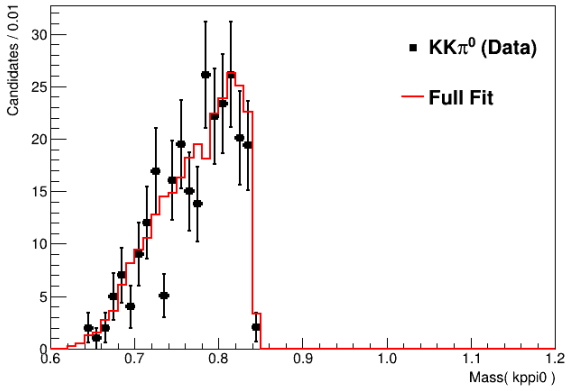

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

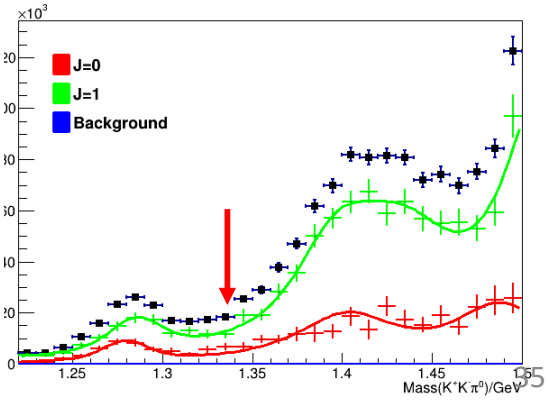

Mass[KKπ] = 1325 MeV
cos(θ)
φ
cos(θ_H)
φ_H


Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

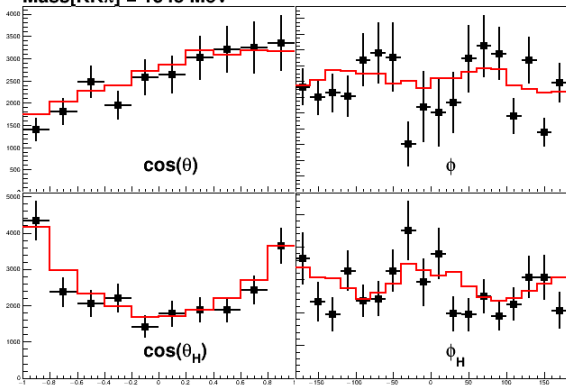

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

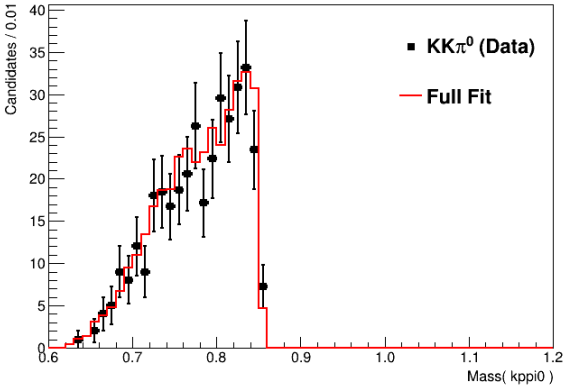

Mass[KKπ] = 1335 MeV
cos(θ)
φ
cos(θ_H)
φ_H

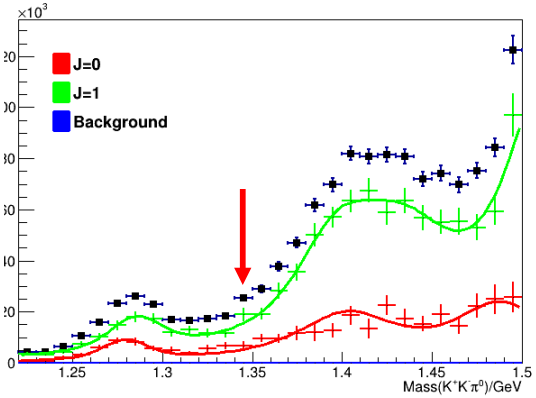

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)


×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

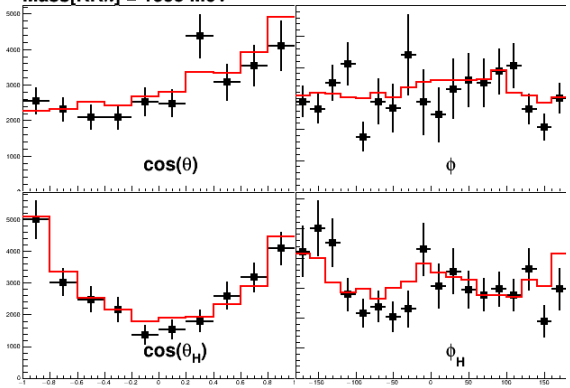
Mass[KKπ] = 1345 MeV

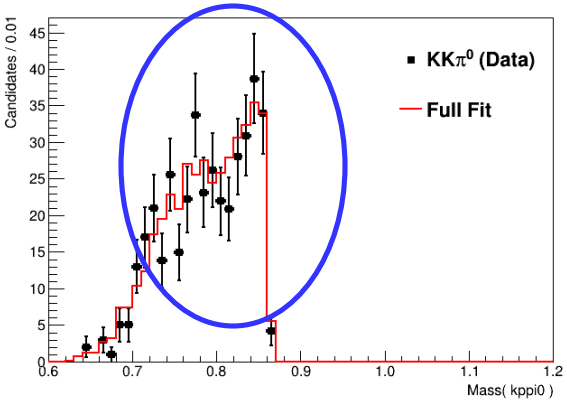


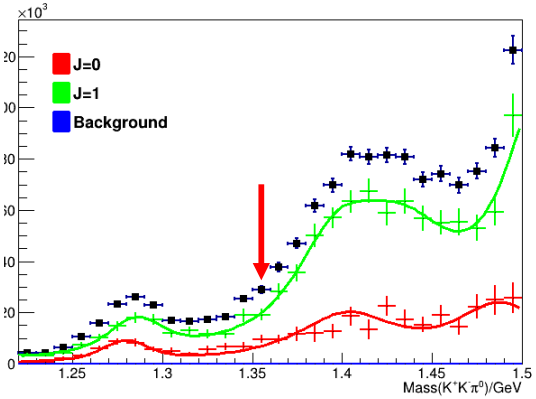




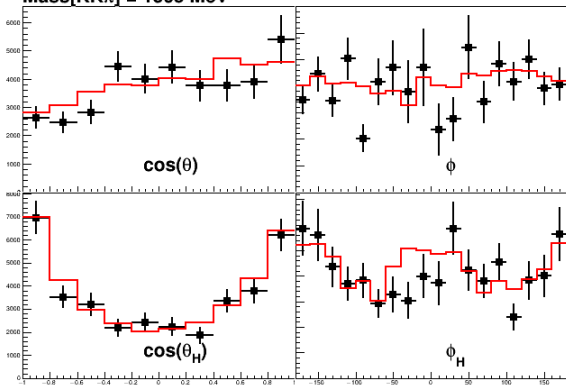
Mass[KKπ] = 1355 MeV

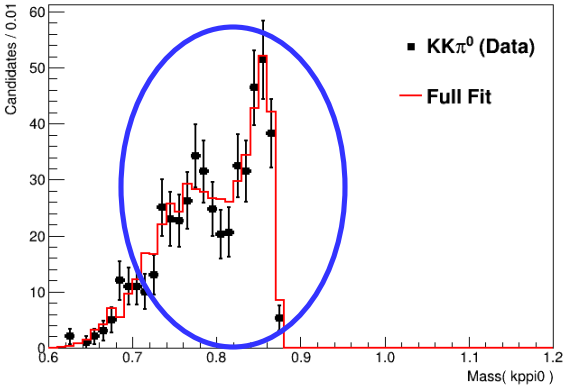


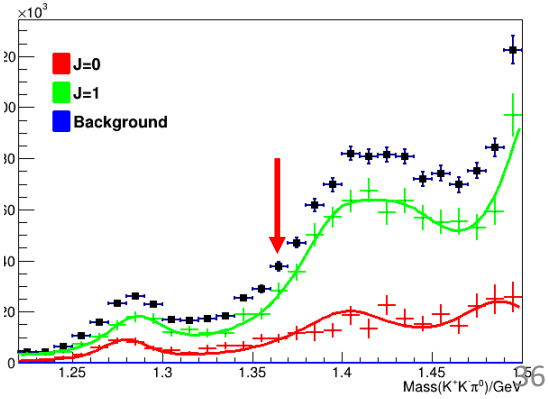


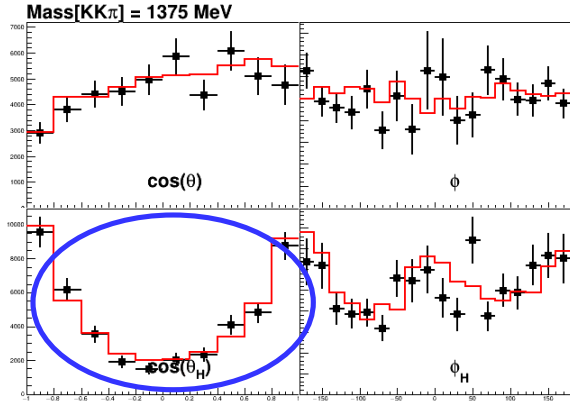


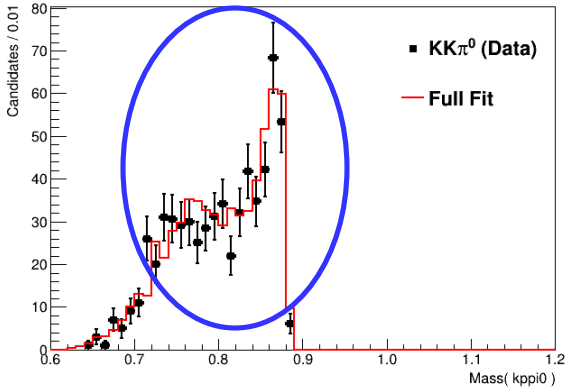
Mass[KKπ] = 1365 MeV

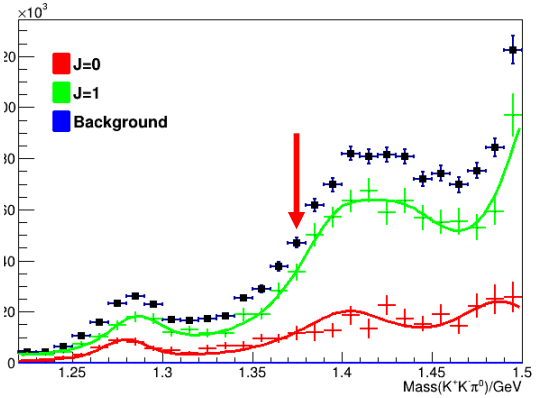


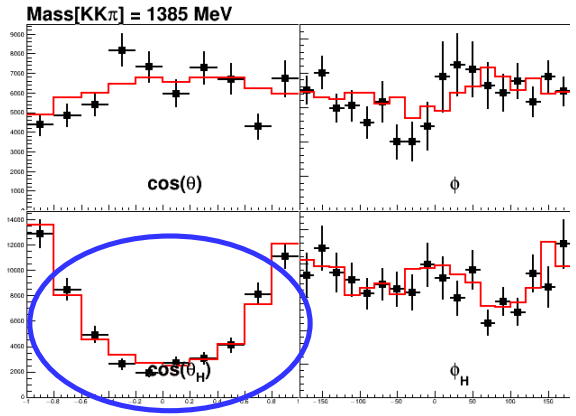


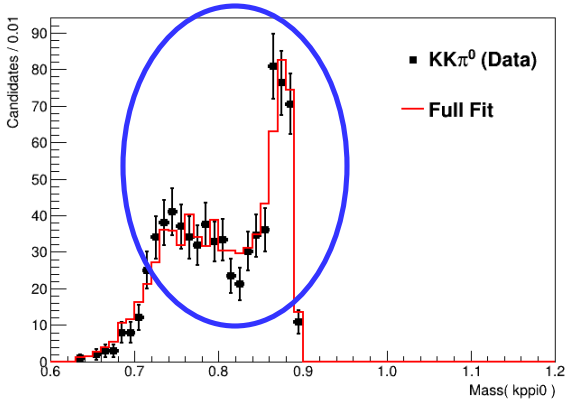


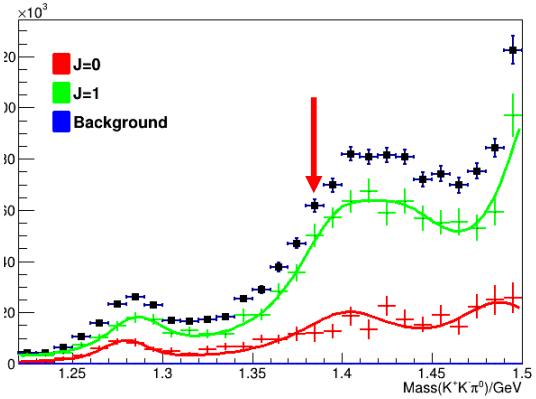

Mass[KKπ] = 1375 MeV
cos(θ)
φ
cos(θ_H)
φ_H

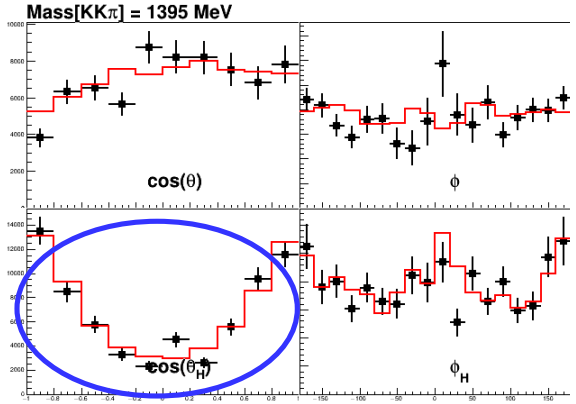

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

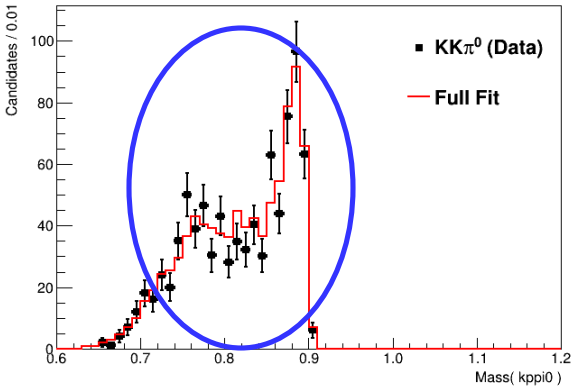

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

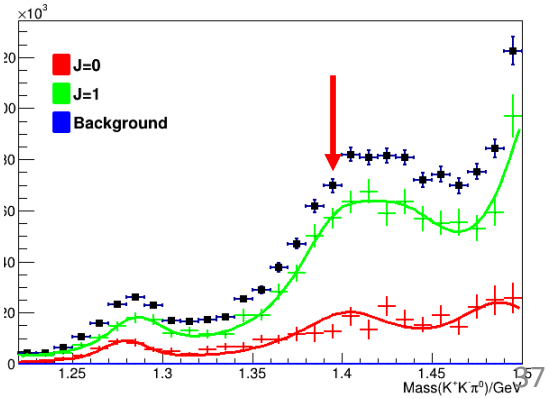

Mass[KKπ] = 1385 MeV
cos(θ)
φ
cos(θ_H)
φ_H

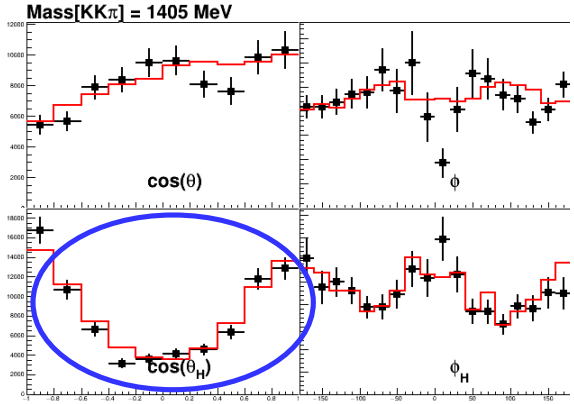

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

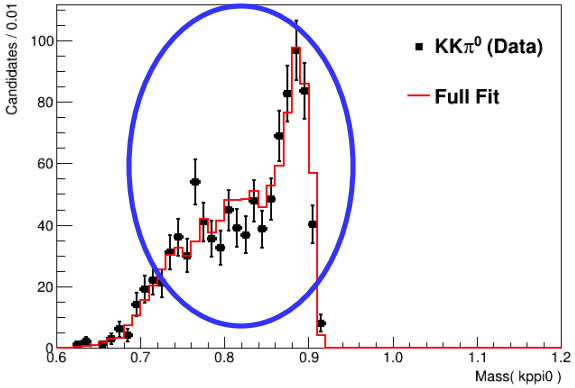

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

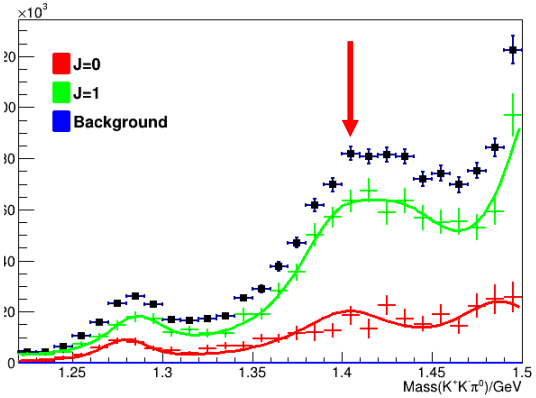

Mass[KKπ] = 1395 MeV
cos(θ)
φ
cos(θ_H)
φ_H

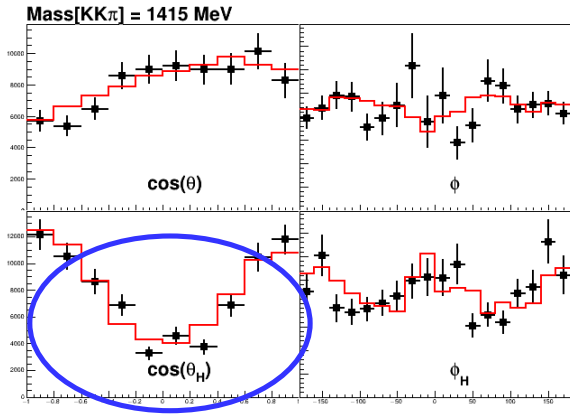

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

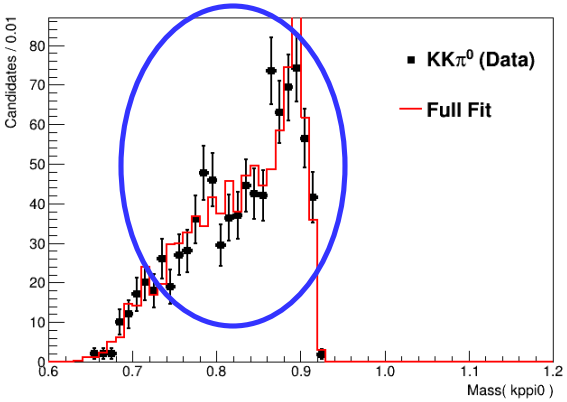

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

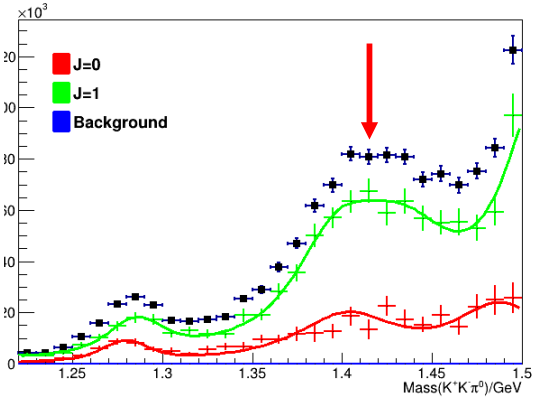

Mass[KKπ] = 1405 MeV
cos(θ)
φ
cos(θ_H)
φ_H

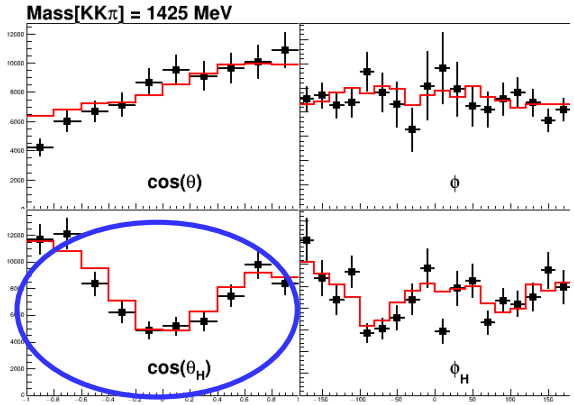

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

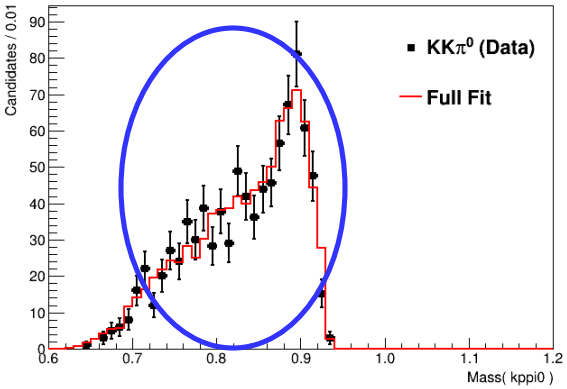

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

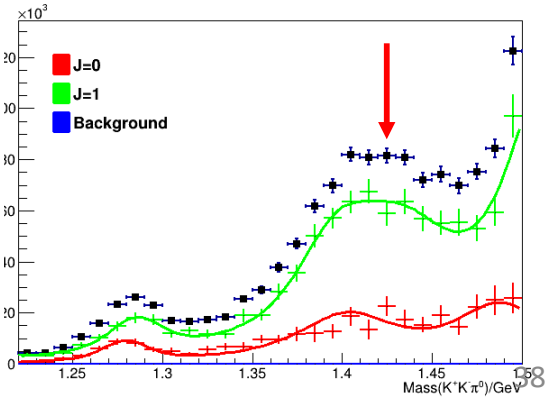

Mass[KKπ] = 1415 MeV
cos(θ)
φ
cos(θ_H)
φ_H

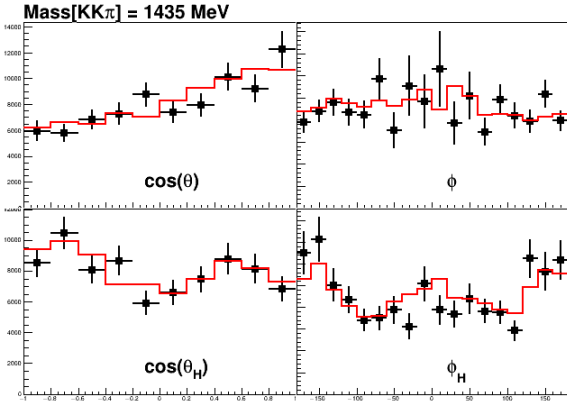

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

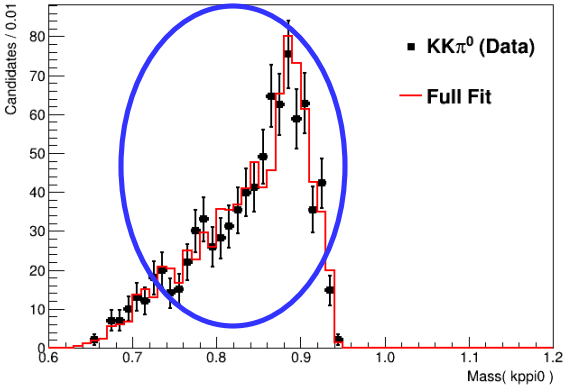

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

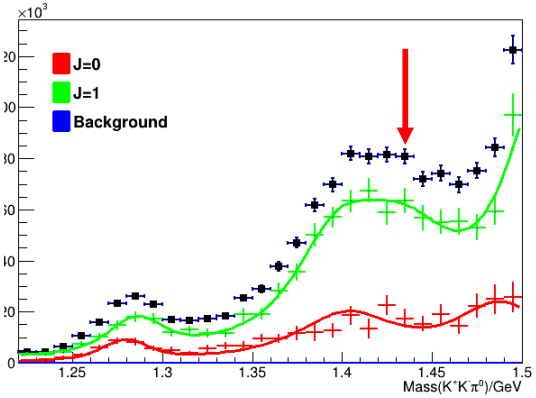

Mass[KKπ] = 1425 MeV
cos(θ)
φ
cos(θ_H)
φ_H

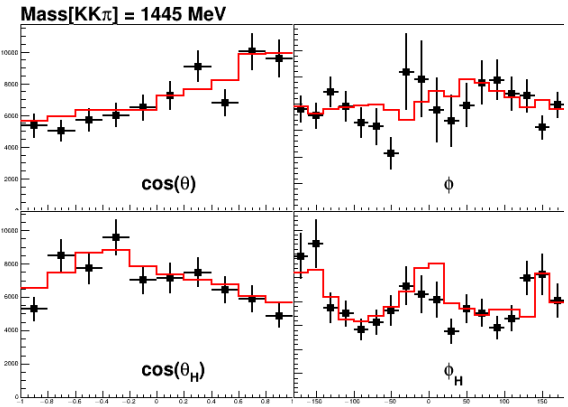

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

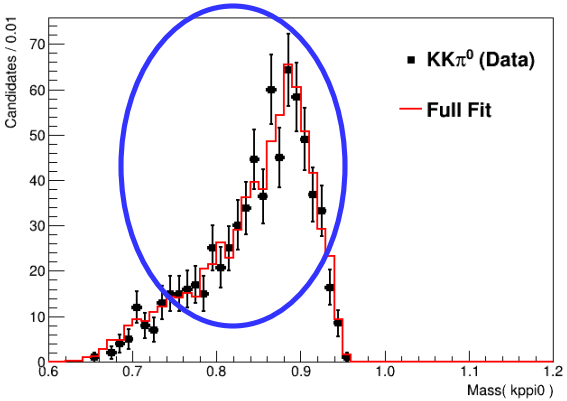

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

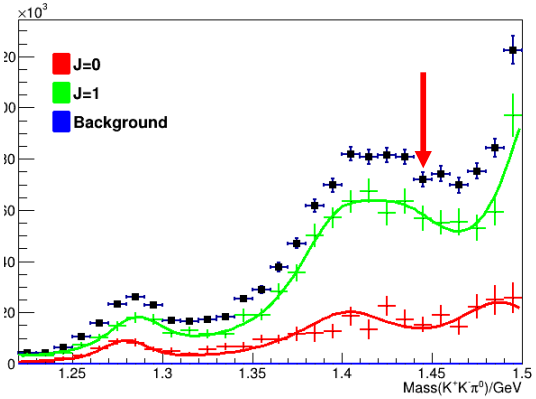

Mass[KKπ] = 1435 MeV
cos(θ)
φ
cos(θ_H)
φ_H

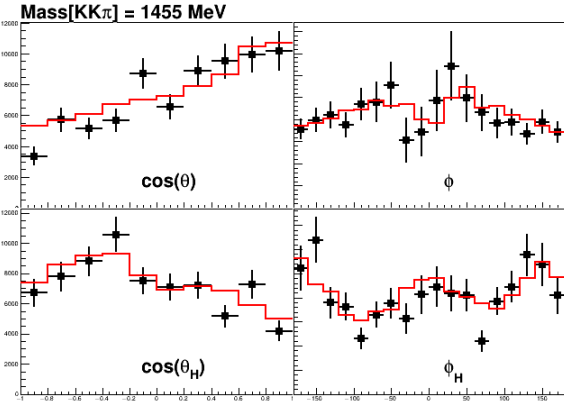

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

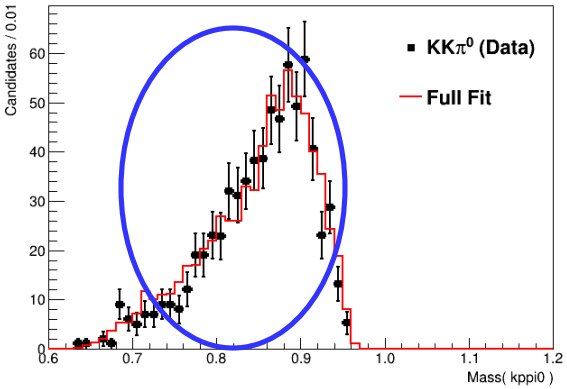

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

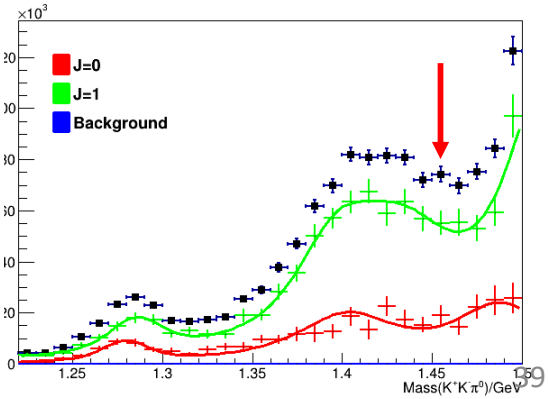

Mass[KKπ] = 1445 MeV
cos(θ)
φ
cos(θ_H)
φ_H


Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)

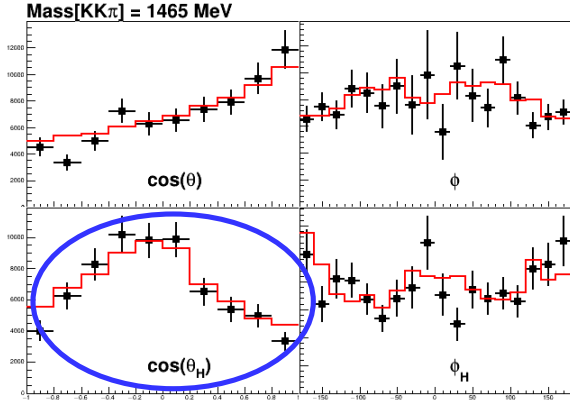

×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

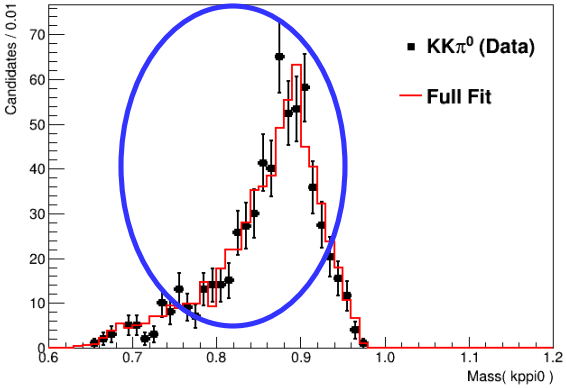

Mass[KKπ] = 1455 MeV
cos(θ)
φ
cos(θ_H)
φ_H

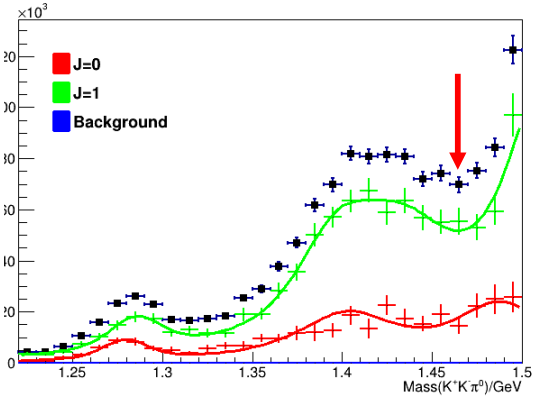

Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)


×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV

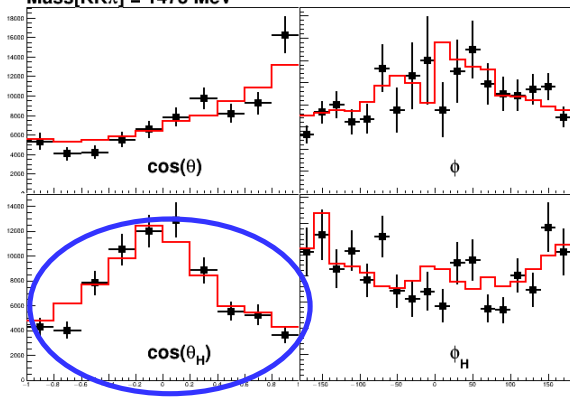
Mass[KKπ] = 1465 MeV

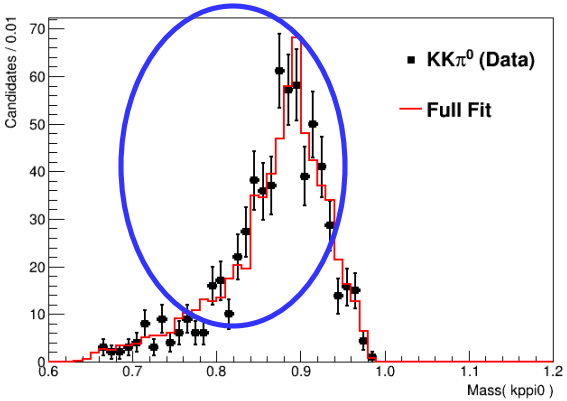


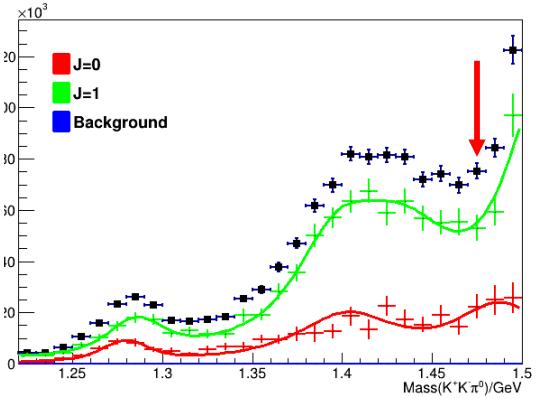




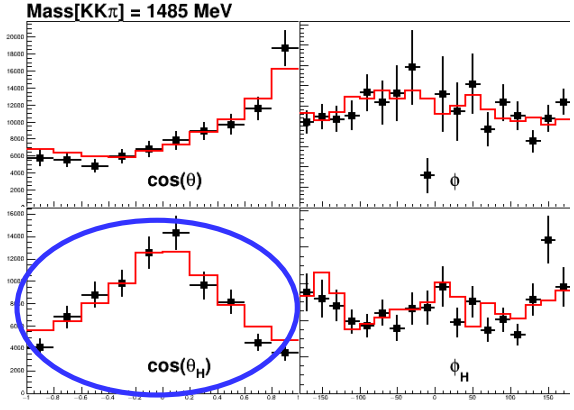
Mass[KKπ] = 1475 MeV

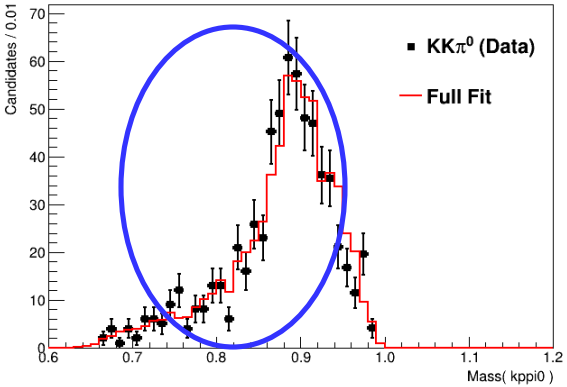


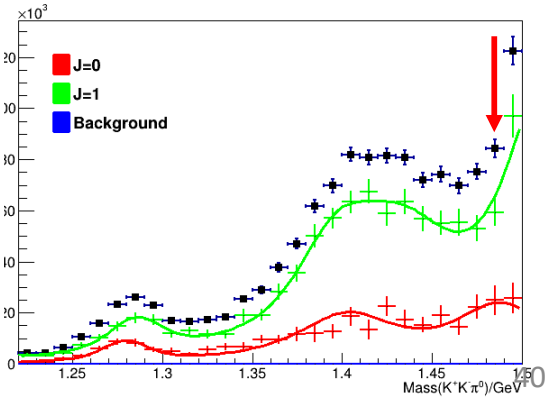


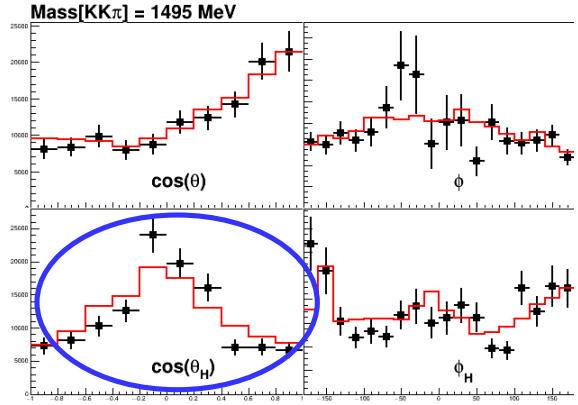


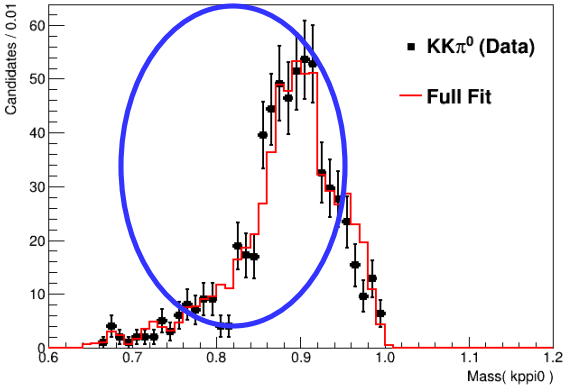
Mass[KKπ] = 1485 MeV

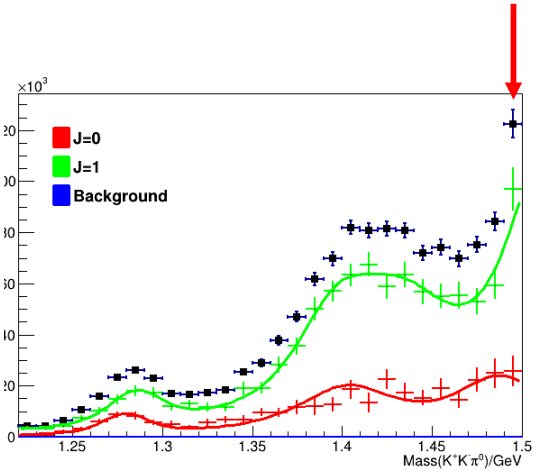







Mass[KKπ] = 1495 MeV
cos(θ)
φ
cos(θ_H)
φ_H


Candidates / 0.01
KKπ⁰ (Data)
Full Fit
Mass(kppi0)


×10³
J=0
J=1
Background
Mass(K⁺K⁻π⁰)/GeV