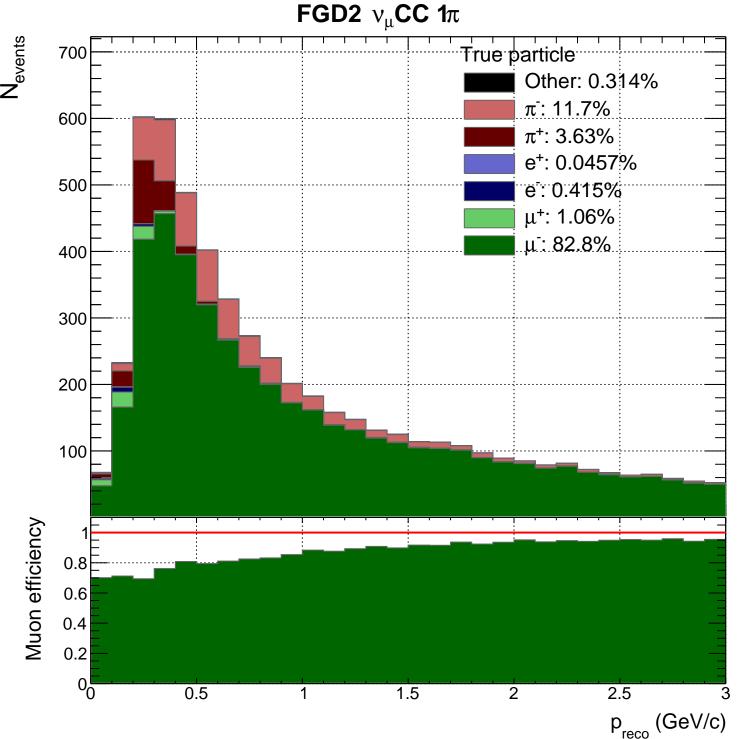


FGD2 ν_{μ} CC 1π True topology 700 NC: 7.6% CC Other v̄: 0.762% 600 CC 1π ⊽: 1.99% CC 0π ⊽: 0.117% 500 CC Other v: 25.4% CC 1π v: 56.4% CC 0π v: 7.69% 400 300 200 100 Selection purity 8.0 0.6 0.4 0.2 00 0.5 1.5 2 2.5 p_{reco} (GeV/c)



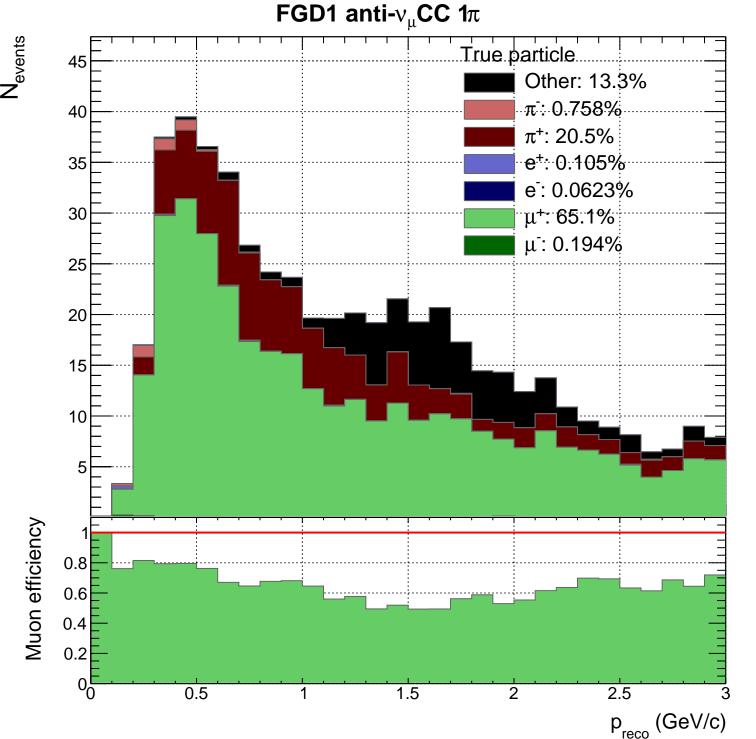
FGD2 ν_{μ} CC other events True topology 300 NC: 10.7% CC Other \overline{v} : 1.03% CC $1\pi \ \overline{\nu}$: 0.297% 250 CC 0π ⊽: 0.117% CC Other v: 64.6% CC 1π v: 11.6% 200 CC 0π v: 11.6% 150 100 50 Selection purity 8.0 0.6 0.4 0.2 00 0.5 1.5 2 2.5 p_{reco} (GeV/c)

FGD2 ν_{μ} CC other events True particle 300 Other: 1.08% π : 20.3% π^+ : 1.36% 250 e+: 0.528% e⁻: 3.15% μ+: 0.351% 200 μ⁻: 73.3% 150 100 50 Muon efficiency 8.0 0.6 0.4 0.2 0, 0.5 1.5 2 2.5 p_{reco} (GeV/c)

FGD1 anti- ν_{μ} CC 0π events True topology 1000 NC: 5.1% CC Other v̄: 5.12% CC 1π ⊽: 9.65% 800 CC $0\pi \, \overline{v}$: 74.9% CC Other v: 2.23% CC 1π v: 1.52% 600 $CC 0\pi v: 1.46\%$ 400 200 Selection purity 8.0 0.6 0.4 0.2 0.5 1.5 2.5 2 p_{reco} (GeV/c)

FGD1 anti- ν_{μ} CC 0π $\mathsf{N}_{\mathsf{events}}$ True particle 1000 Other: 3.23% π : 0.833% π^+ : 5.27% 800 e+: 0.178% e: 0.161% μ+: 89% 600 μ : 1.29% 400 200 Muon efficiency 8.0 0.6 0.4 0.2 0.5 1.5 2 2.5 p_{reco} (GeV/c)

FGD1 anti- ν_{μ} CC 1 π True topology 45 NC: 7.98% CC Other ⊽: 10.7% 40 CC 1π ⊽: 53.7% CC 0π ⊽: 1.73% 35 CC Other v: 10.8% 30 CC 1π v: 11.4% CC 0π v: 3.72% 25 20 15 10 5 Selection purity 8.0 0.6 0.4 0.2 0.5 1.5 2.5 2 p_{reco} (GeV/c)



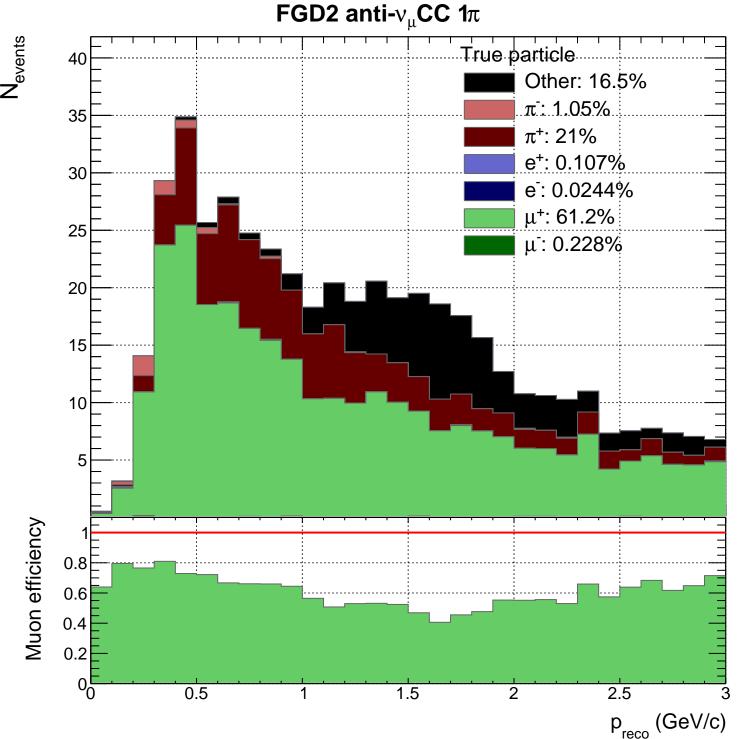
FGD1 anti- ν_{μ} CC other 60 True topology NC: 15.5% CC Other v̄: 24% 50 CC 1π ⊽: 12.1% CC 0π ⊽: 11.1% CC Other v: 23.8% 40 CC 1π v: 6.5% CC 0π v: 7% 30 20 10 Selection purity 8.0 0.6 0.4 0.2 1.5 2.5 0.5 2 p_{reco} (GeV/c)

FGD1 anti- ν_{μ} CC other 60 True particle Other: 20.2% π⁻: 1.01% 50 π+: 22.6% e+: 1.55% e: 1.01% 40 μ+: 44% μ^{-} : 9.69% 30 20 10 Muon efficiency 8.0 0.6 0.4 0.2 0.5 1.5 2 2.5 p_{reco} (GeV/c)

FGD2 anti- ν_{μ} CC 0π 1000 True topology NC: 5.14% CC Other v̄: 5.27% CC 1π ⊽: 9.3% 800 CC $0\pi \, \overline{v}$: 73.9% CC Other v: 2.44% CC 1π v: 1.84% 600 CC 0π v: 2.1% 400 200 Selection purity 8.0 0.6 0.4 0.2 0.5 2.5 1.5 2 p_{reco} (GeV/c)

FGD2 anti- ν_{μ} CC 0π $\mathsf{N}_{\mathsf{events}}$ 1000 True particle Other: 3.38% π̄: 1.2% π^+ : 5.25% 800 e+: 0.184% e: 0.129% μ+: 87.7% 600 μ: 2.2% 400 200 Muon efficiency 8.0 0.6 0.4 0.2 0.5 1.5 2 2.5 p_{reco} (GeV/c)

FGD2 anti- ν_{μ} CC 1 π True topology 40 NC: 8.86% CC Other v̄: 10.4% 35 CC 1π ⊽: 49.8% CC $0\pi \ \overline{v}$: 2.02% 30 CC Other v: 12% CC 1π v: 11.9% 25 CC 0π v: 5.03% 20 15 10 5 Selection purity 8.0 0.6 0.4 0.2 0.5 1.5 2.5 2 p_{reco} (GeV/c)

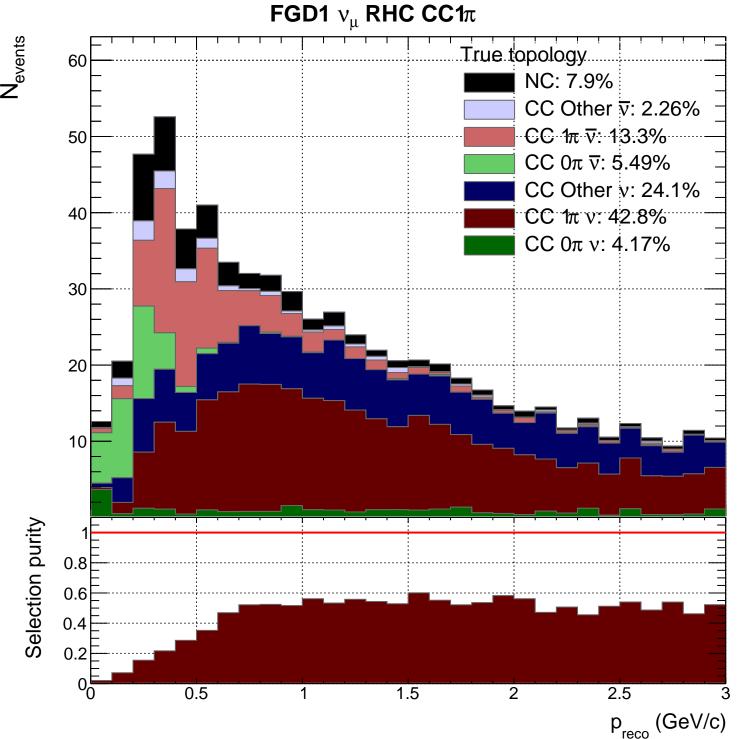


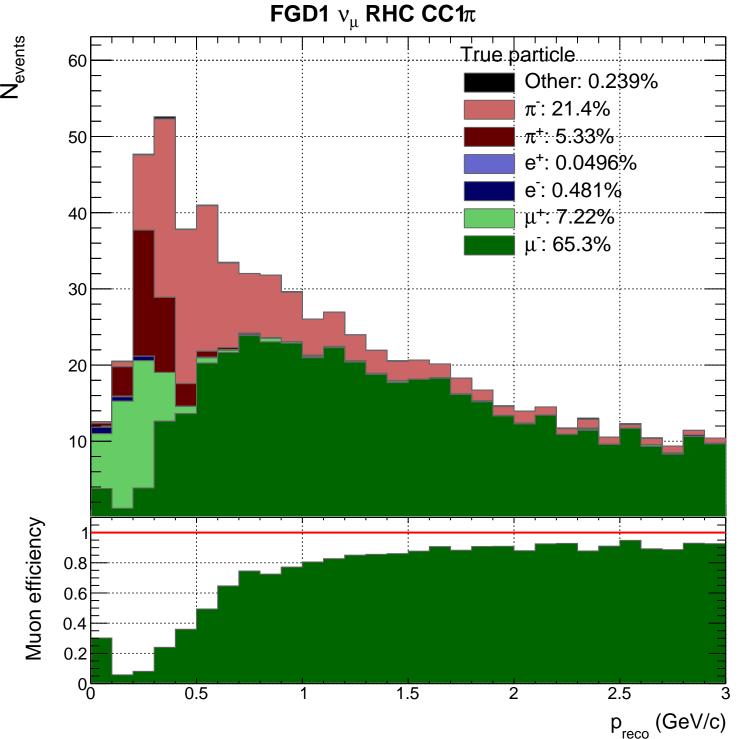
FGD2 anti- ν_{μ} CC other True topology NC: 17.2% 50 CC Other \overline{v} : 23.2% CC 1π ⊽: 11.7% CC 0π ⊽: 10.5% 40 CC Other v: 24.4% CC 1π v: 6.86% CC 0π v: 6.07% 30 20 10 Selection purity 8.0 0.6 0.4 0.2 0, 0.5 1.5 2 2.5 p_{reco} (GeV/c)

FGD2 anti- ν_{μ} CC other True particle Other: 23.8% 50 π̄: 1.08% π^+ : 22.6% e+: 1.3% 40 e: 0.821% μ+: 41.8% μ⁻: 8.64% 30 20 10 Muon efficiency 8.0 0.6 0.4 0.2 0.5 1.5 2 2.5 p_{reco} (GeV/c)

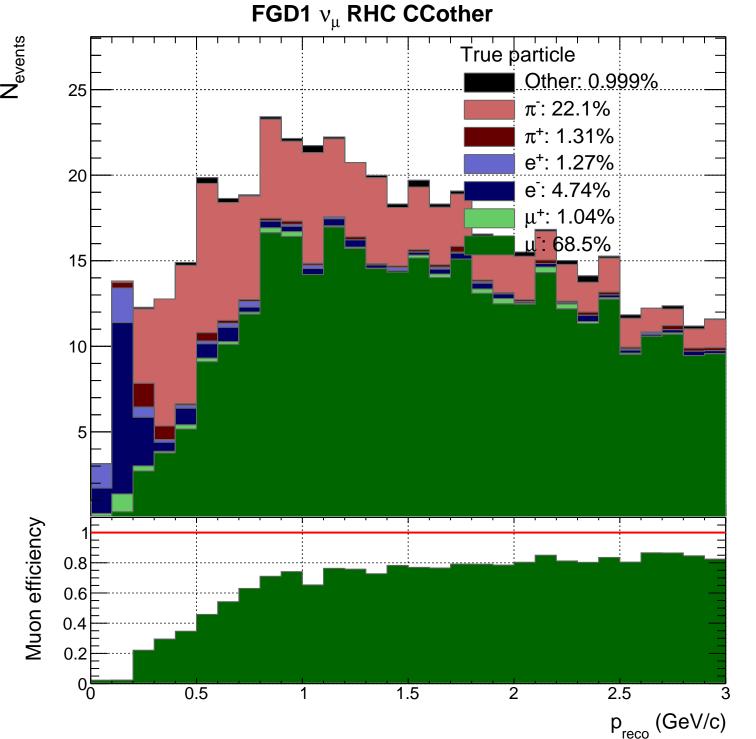
FGD1 ν_{μ} RHC CC0 π events 160 True topology NC: 8.95% CC Other ⊽: 1.31% 140 CC 1π ⊽: 3.55% CC $0\pi \, \overline{\nu}$: 3.04% 120 CC Other v: 15.5% CC 1π v: 12.4% 100 CC 0π v: 55.3% 80 60 40 20 Selection purity 8.0 0.6 0.4 0.2 00 0.5 1.5 2 2.5 p_{reco} (GeV/c)

FGD1 ν_{μ} RHC CC0 $\!\pi$ $\mathsf{N}_{\mathsf{events}}$ 160 True particle Other: 0.491% π : 12.6% 140 π^+ : 2.43% e+: 0.657% 120 e: 1.46% μ+: 3.33% 100 μ̄: 79% 80 60 40 20 Muon efficiency 8.0 0.6 0.4 0.2 00 0.5 1.5 2 2.5 p_{reco} (GeV/c)





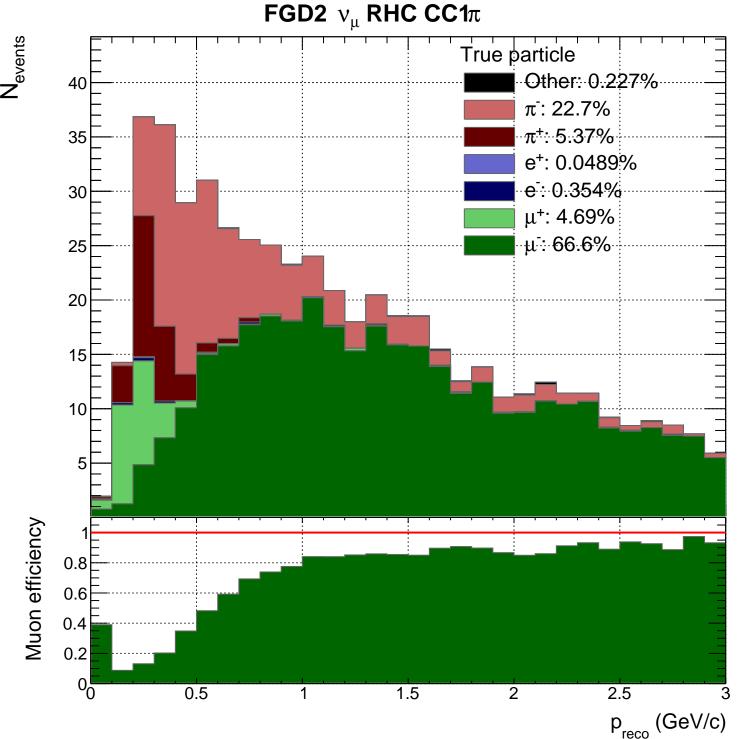
FGD1 ν_{μ} RHC CCother True topology NC: 13.2% 25 CC Other \overline{v} : 3.39% CC 1π ⊽: 3.04% CC $0\pi \ \overline{v}$: 0.51% 20 CC Other v: 60.4% CC $1\pi v: 8.7\%$ 0π ν: 10.7% 15 10 5 Selection purity 8.0 0.6 0.4 0.2 0, 0.5 1.5 2 2.5 p_{reco} (GeV/c)



FGD2 ν_{μ} RHC CC0 π events True topology 180 NC: 9.15% 160 CC Other ⊽: 1.49% CC 1π ⊽: 3.74% 140 CC 0π v: 3.33% CC Other v: 15.7% 120 CC 1π v: 13.7% CC 0π v: 52.9% 100 80 60 40 20 Selection purity 8.0 0.6 0.4 0.2 00 0.5 1.5 2 2.5 p_{reco} (GeV/c)

FGD2 $\,\nu_{\mu}$ RHC CC0 π $\mathsf{N}_{\mathsf{events}}$ True particle 180 Other: 0.479% 160 π : 12.4% π^+ : 3.95% 140 e+: 0.567% e⁻: 1.23% 120 μ+: 3.98% μ⁻: 77.4% 100 80 60 40 20 Muon efficiency 8.0 0.6 0.4 0.2 0, 0.5 1.5 2 2.5 p_{reco} (GeV/c)

FGD2 ν_{μ} RHC CC1 π True topology NC: 7.66% 40 CC Other v: 2.02% CC 1π ⊽: 14.7% 35 CC $0\pi \, \overline{v}$: 3.41% CC Other v: 25.1% 30 CC 1π v: 43% CC 0π v: 4.09% 25 20 15 10 Selection purity 8.0 0.6 0.4 0.2 0.5 1.5 2 2.5 p_{reco} (GeV/c)



FGD2 ν_{μ} RHC CCother True topology 25 NC: 12.9% CC Other \overline{v} : 3.33% CC 1π ⊽: 2.98% 20 CC 0π ⊽: 0.52% C Other v: 60.7% C 1π v: 9.12% 0π ν: 10.4% 15 10 5 Selection purity 8.0 0.6 0.4 0.2 0, 0.5 1.5 2 2.5 p_{reco} (GeV/c)

FGD2 ν_{μ} RHC CCother events True particle 25 Other: 1.38% π̄: 21.5% π^+ : 1.42% 20 e+: 0.901% e : 4.74% <mark>μ</mark>+<u>:</u> 1.33% **1**: 68.7% 15 10 5 Muon efficiency 8.0 0.6 0.4 0.2 0.5 1.5 2 2.5 p_{reco} (GeV/c)