MINERvA_CCQE_XSec_1DQ2_nu

MINERvA_CCQE_XSec_1DQ2_nu_20deg

MINERvA_CCQE_XSec_1DQ2_antinu

MINERvA_CCQE_XSec_1DQ2_antinu_20deg

$\times 10^{-39}$

dσ/dQ$^2_{QE}$ (cm^2/GeV^2)

MINERvA_CCQE_XSec_1DQ2_antinu_20deg

NUISANCE

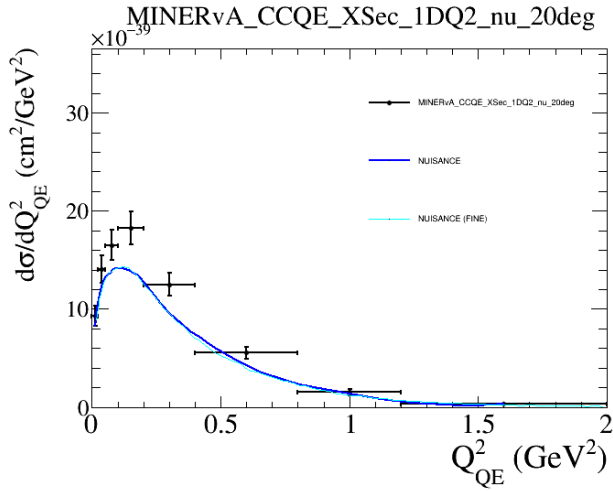NUISANCE (FINE)

Q$^2_{QE}$ (GeV^2)

MINERvA_CCQE_XSec_1DQ2_antinu_20deg_settings

- **name** : MINERvA_CCQE_XSec_1DQ2_antinu_20deg
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCQE_XSec_1DQ2_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current Numubar
  |--> Signal: True CCQE/2p2h defined at the vertex level
- **xtitle** : Q$^2_{QE}$ (GeV^2)
- **ytitle** : dσ/dQ$^2_{QE}$ (cm^2/GeV^2)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCQE_XSec_1DQ2_antinu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCQE_XSec_1DQ2_antinu_20deg
- **χ²** : 19.6425
- **NDOF** : 8
- **χ²/NDOF** : 2.45532

MINERvA_CCQE_XSec_1DQ2_joint

$\times 10^{-39}$

dσ/dQ$^2_{QE}$ (cm^2/GeV^2)

MINERvA_CCQE_XSec_1DQ2_joint

NUISANCE
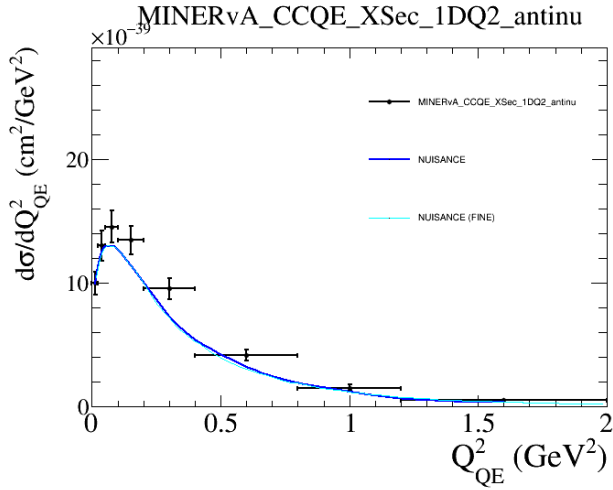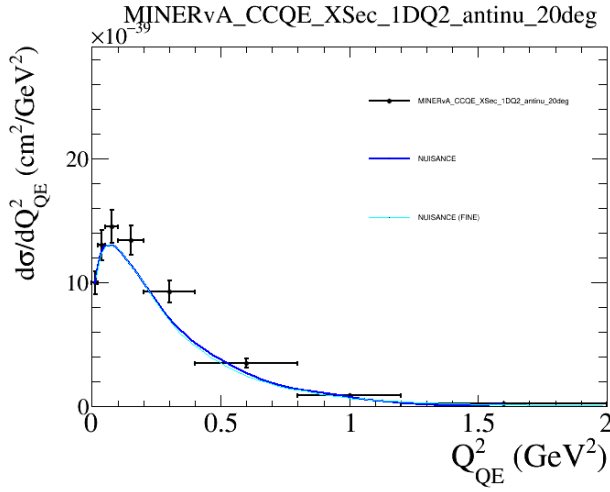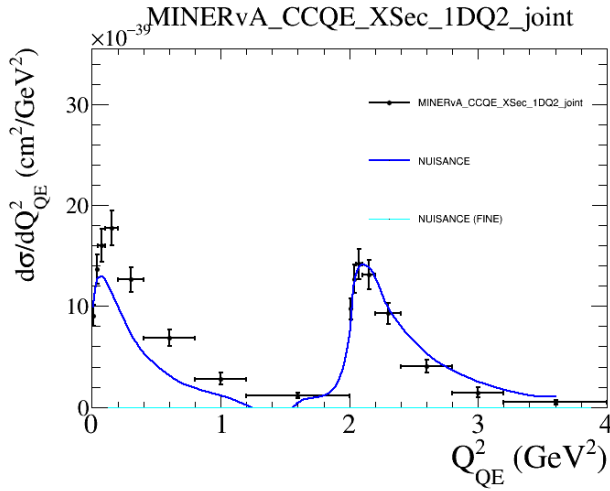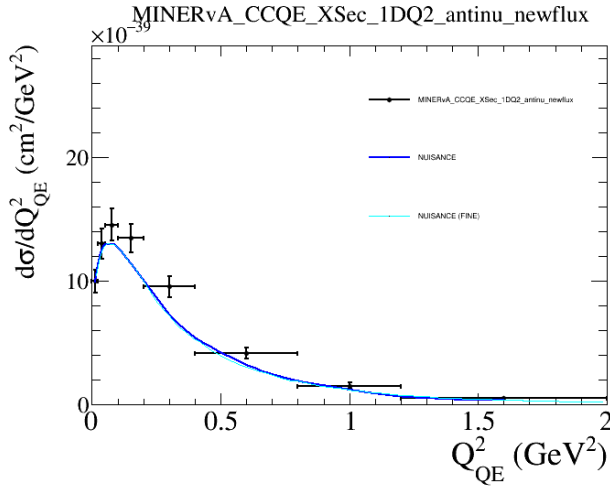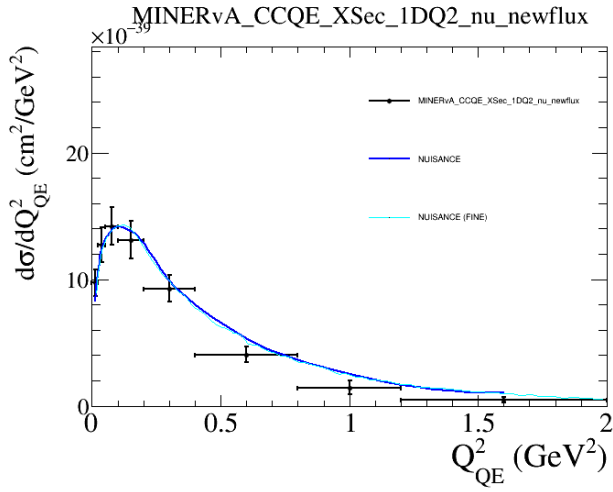
NUISANCE (FINE)

Q$^2_{QE}$ (GeV^2)

MINERvA_CCQE_XSec_1DQ2_joint_settings

- **name** : MINERvA_CCQE_XSec_1DQ2_joint
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCQE_XSec_1DQ2_joint sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : Q$^2_{QE}$ (GeV^2)
- **ytitle** : dσ/dQ$^2_{QE}$ (cm^2/GeV^2)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCQE_XSec_1DQ2_joint
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCQE_XSec_1DQ2_joint
- **χ²** : 332.433
- **NDOF** : 16
- **χ²/NDOF** : 20.7771

MINERvA_CCQE_XSec_1DQ2_antinu_newflux

$\times 10^{-39}$

dσ/dQ$^2_{QE}$ (cm^2/GeV^2)

MINERvA_CCQE_XSec_1DQ2_antinu_newflux

NUISANCE

NUISANCE (FINE)

Q$^2_{QE}$ (GeV^2)

MINERvA_CCQE_XSec_1DQ2_antinu_newflux_settings

- **name** : MINERvA_CCQE_XSec_1DQ2_antinu_newflux
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCQE_XSec_1DQ2_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current Numubar
  |--> Signal: True CCQE/2p2h defined at the vertex level
- **xtitle** : Q$^2_{QE}$ (GeV^2)
- **ytitle** : dσ/dQ$^2_{QE}$ (cm^2/GeV^2)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCQE_XSec_1DQ2_antinu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCQE_XSec_1DQ2_antinu_newflux
- **χ²** : 19.9113
- **NDOF** : 8
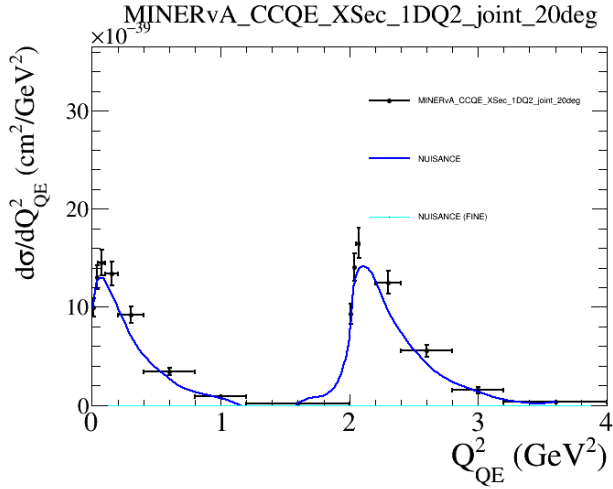- **χ²/NDOF** : 2.48891
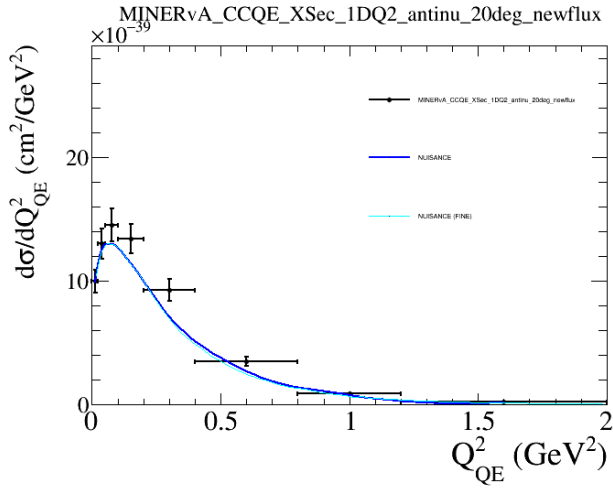
MINERvA_CCQE_XSec_1DQ2_nu_newflux

MINERvA_CCQE_XSec_1DQ2_nu_newflux_settings

- **name** : MINERvA_CCQE_XSec_1DQ2_nu_newflux
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCQE_XSec_1DQ2_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current Numu
  |--> Signal: True CCQE/2p2h defined at the vertex level
- **xtitle** : Q^2_{QE} (GeV^2)
- **ytitle** : $d\sigma/dQ^2_{QE}$ (cm^2/GeV^2)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCQE_XSec_1DQ2_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCQE_XSec_1DQ2_nu_newflux
- **χ²** : 19.3218
- **NDOF** : 8
- **χ²/NDOF** : 2.41522

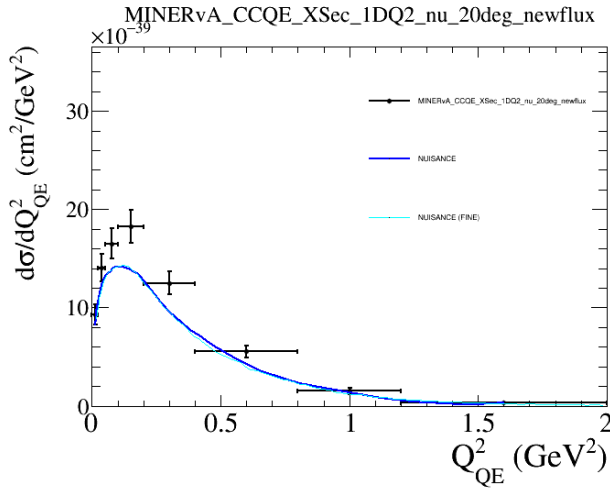## MINERvA_CCQE_XSec_1DQ2_joint_20deg

MINERvA_CCQE_XSec_1DQ2_joint_20deg_settings

- **name** : MINERvA_CCQE_XSec_1DQ2_joint_20deg
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCQE_XSec_1DQ2_joint sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : Q^2_{QE} (GeV^2)
- **ytitle** : $d\sigma/dQ^2_{QE}$ (cm^2/GeV^2)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCQE_XSec_1DQ2_joint
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCQE_XSec_1DQ2_joint_20deg
- **χ²** : 38.4499
- **NDOF** : 16
- **χ²/NDOF** : 2.40312

MINERvA_CCQE_XSec_1DQ2_antinu_20deg_newflux

MINERvA_CCQE_XSec_1DQ2_antinu_20deg_newflux_settings

- **name** : MINERvA_CCQE_XSec_1DQ2_antinu_20deg_newflux
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCQE_XSec_1DQ2_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current Numubar
  |--> Signal: True CCQE/2p2h defined at the vertex level
- **xtitle** : Q^2_{QE} (GeV^2)
- **ytitle** : $d\sigma/dQ^2_{QE}$ (cm^2/GeV^2)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCQE_XSec_1DQ2_antinu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCQE_XSec_1DQ2_antinu_20deg_newflux
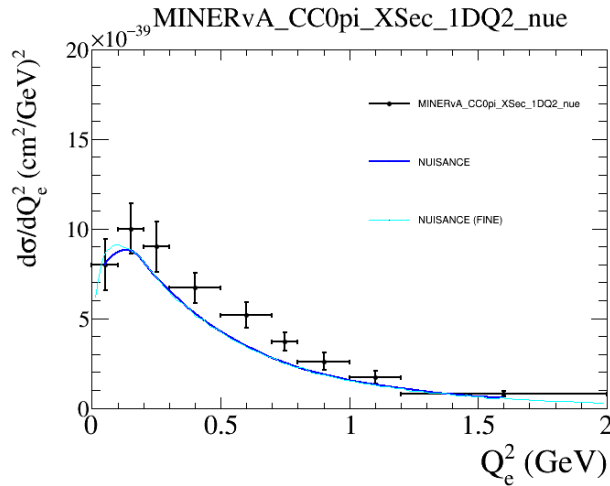- **χ²** : 19.6425
- **NDOF** : 8
- **χ²/NDOF** : 2.45532

MINERvA_CCQE_XSec_1DQ2_nu_20deg_newflux

MINERvA_CC0pi_XSec_1DEe_nue

MINERvA_CC0pi_XSec_1DQ2_nue

MINERvA_CC0pi_XSec_1DThetae_nue
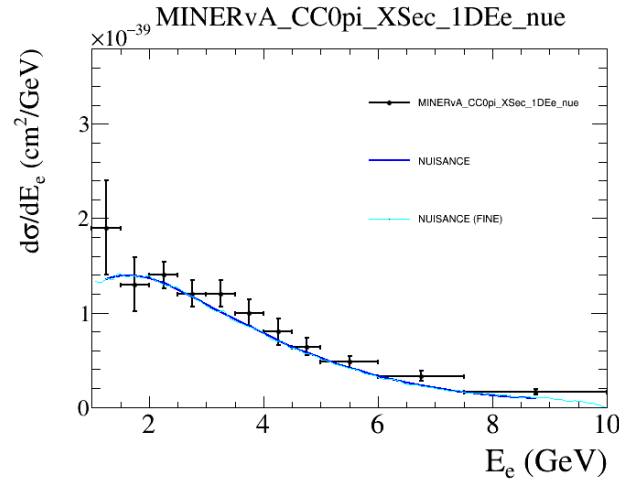
MINERvA_CC0pi_XSec_1DThetae_nue_settings

- **name** : MINERvA_CC0pi_XSec_1DThetae_nue
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_nue.CH.2500000.3.prepared.r
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC0pi_XSec_1DThetae_nue sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : θ_e
- **ytitle** : $d\sigma/d\theta_e$ (cm^2)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 0
- **enu_max** : 10
- **title** : MINERvA ν_e CC0π
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/m
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CC0pi_XSec_1DThetae_nue
- **χ^2** : 13.0294
- **NDOF** : 15
- **χ^2/NDOF** : 0.868625

MINERvA_CC0pi_XSec_1DQ2_nu_proton

MINERvA_CC0pi_XSec_1DQ2_nu_proton_settings

- **name** : MINERvA_CC0pi_XSec_1DQ2_nu_proton
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC0pi_XSec_1DQ2_nu_proton sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : Q^2_{QE} (GeV^2)
- **ytitle** : $d\sigma/dQ^2$ (cm^2/GeV^2)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 0
- **enu_max** : 100
- **title** : MINERvA_CC0pi_XSec_1DQ2_nu_proton
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/m
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CC0pi_XSec_1DQ2_nu_proton
- **χ^2** : 7.63844
- **NDOF** : 7
- **χ^2/NDOF** : 1.09121
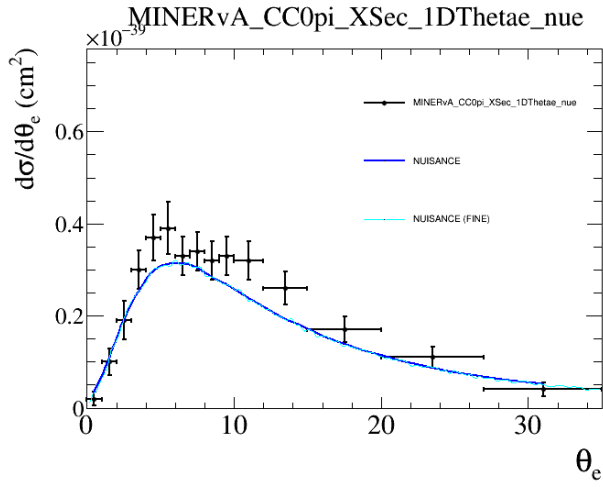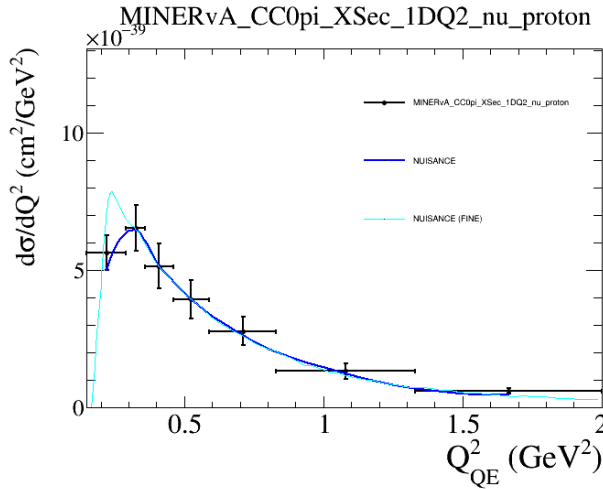
MINERvA_CC1pip_XSec_1DTpi_nu

MINERvA_CC1pip_XSec_1DTpi_nu_settings

- **name** : MINERvA_CC1pip_XSec_1DTpi_nu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pip_XSec_1DTpi_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : T_π (MeV)
- **ytitle** : $d\sigma/dT_\pi$ (cm^2/MeV/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pip_XSec_1DTpi_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/m
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CC1pip_XSec_1DTpi_nu
- **χ^2** : 22.0665
- **NDOF** : 7
- **χ^2/NDOF** : 3.15236

MINERvA_CC1pip_XSec_1DTpi_nu_20deg

MINERvA_CC1pip_XSec_1DTpi_nu_20deg_settings

- **name** : MINERvA_CC1pip_XSec_1DTpi_nu_20deg
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pip_XSec_1DTpi_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : T_π (MeV)
- **ytitle** : $d\sigma/dT_\pi$ (cm^2/MeV/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pip_XSec_1DTpi_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CC1pip_XSec_1DTpi_nu_20deg
- χ^2 : 22.8941
- **NDOF** : 7
- χ^2/**NDOF** : 3.27058

MINERvA_CC1pip_XSec_1DTpi_nu_fluxcorr

MINERvA_CC1pip_XSec_1DTpi_nu_fluxcorr_settings

- **name** : MINERvA_CC1pip_XSec_1DTpi_nu_fluxcorr
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pip_XSec_1DTpi_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : T_π (MeV)
- **ytitle** : $d\sigma/dT_\pi$ (cm^2/MeV/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pip_XSec_1DTpi_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CC1pip_XSec_1DTpi_nu_fluxcorr
- χ^2 : 19.3819
- **NDOF** : 7
- χ^2/**NDOF** : 2.76885

MINERvA_CC1pip_XSec_1DTpi_nu_20deg_fluxcorr

MINERvA_CC1pip_XSec_1DTpi_nu_20deg_fluxcorr_settings

- **name** : MINERvA_CC1pip_XSec_1DTpi_nu_20deg_fluxcorr
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pip_XSec_1DTpi_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : T_π (MeV)
- **ytitle** : $d\sigma/dT_\pi$ (cm^2/MeV/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pip_XSec_1DTpi_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CC1pip_XSec_1DTpi_nu_20deg_fluxcorr
- χ^2 : 20.0449
- **NDOF** : 7
- χ^2/**NDOF** : 2.86355

MINERvA_CC1pip_XSec_1Dth_nu
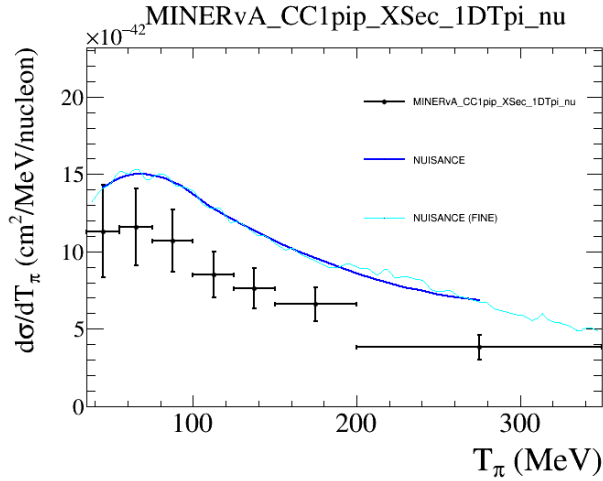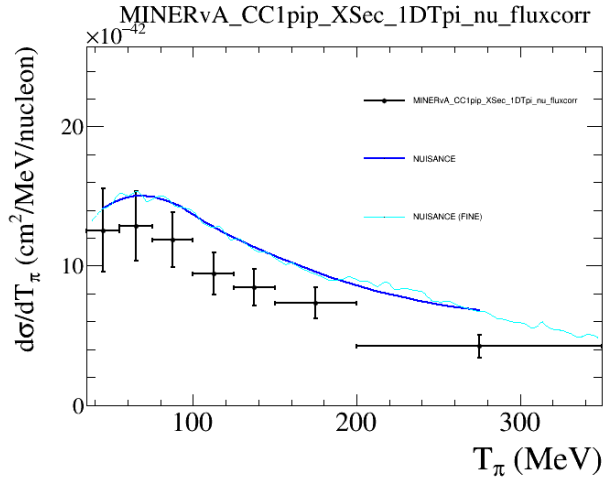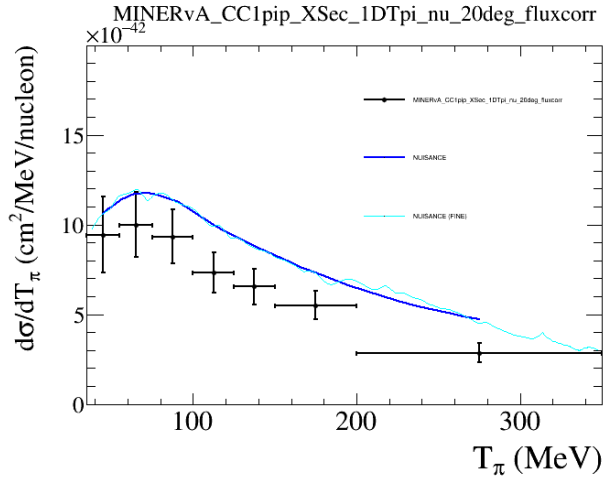
MINERvA_CC1pip_XSec_1Dth_nu_settings

- **name** : MINERvA_CC1pip_XSec_1Dth_nu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pip_XSec_1Dth_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : θ_π (degrees)
- **ytitle** : $d\sigma/d\theta_\pi$ (cm^2/degrees/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pip_XSec_1Dth_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CC1pip_XSec_1Dth_nu
- **χ^2** : 104.614
- **NDOF** : 13
- **χ^2/NDOF** : 8.04719

MINERvA_CC1pip_XSec_1Dth_nu_20deg

MINERvA_CC1pip_XSec_1Dth_nu_20deg_settings

- **name** : MINERvA_CC1pip_XSec_1Dth_nu_20deg
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pip_XSec_1Dth_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : θ_π (degrees)
- **ytitle** : $d\sigma/d\theta_\pi$ (cm^2/degrees/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pip_XSec_1Dth_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CC1pip_XSec_1Dth_nu_20deg
- **χ^2** : 89.2499
- **NDOF** : 13
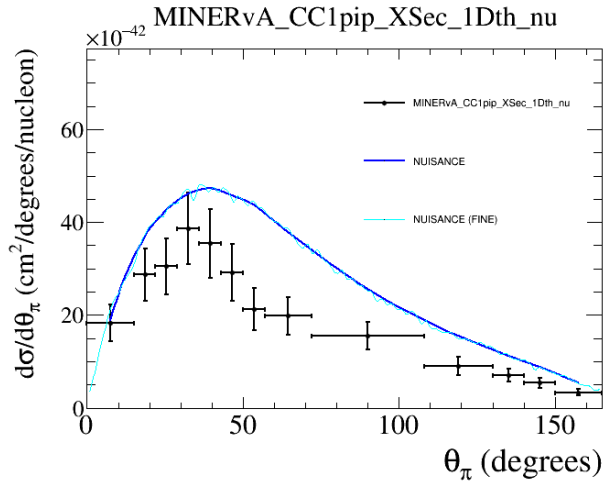- **χ^2/NDOF** : 6.86537

MINERvA_CC1pip_XSec_1Dth_nu_fluxcorr

MINERvA_CC1pip_XSec_1Dth_nu_fluxcorr_settings

- **name** : MINERvA_CC1pip_XSec_1Dth_nu_fluxcorr
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pip_XSec_1Dth_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : θ_π (degrees)
- **ytitle** : $d\sigma/d\theta_\pi$ (cm^2/degrees/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pip_XSec_1Dth_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CC1pip_XSec_1Dth_nu_fluxcorr
- **χ^2** : 100.929
- **NDOF** : 13
- **χ^2/NDOF** : 7.7638

MINERvA_CC1pip_XSec_1Dth_nu_20deg_fluxcorr
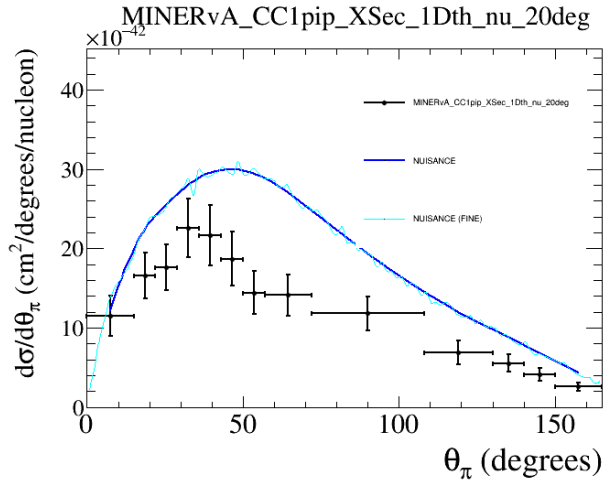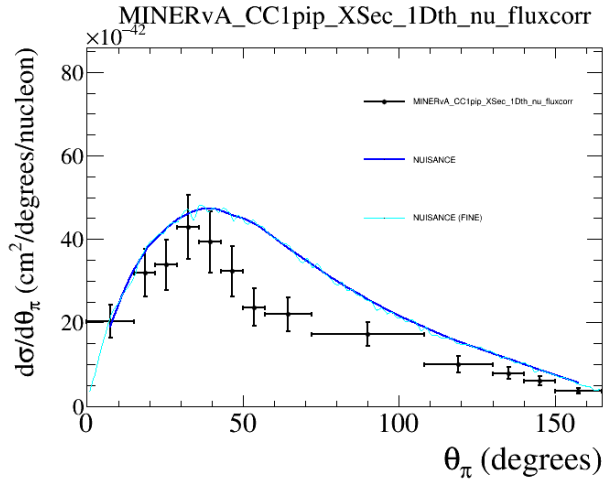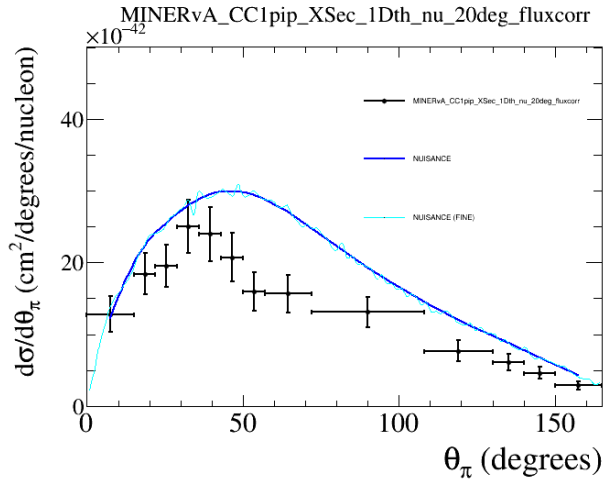
MINERvA_CC1pip_XSec_1Dth_nu_20deg_fluxcorr_settings

- **name** : MINERvA_CC1pip_XSec_1Dth_nu_20deg_fluxcorr
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pip_XSec_1Dth_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : θ_π (degrees)
- **ytitle** : $d\sigma/d\theta_\pi$ (cm^2/degrees/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pip_XSec_1Dth_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CC1pip_XSec_1Dth_nu_20deg_fluxcorr
- χ^2 : 86.3164
- **NDOF** : 13
- χ^2**/NDOF** : 6.63972

MINERvA_CCNpip_XSec_1Dth_nu
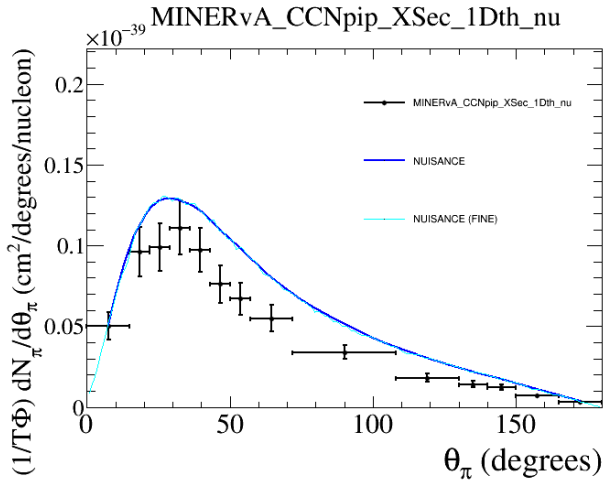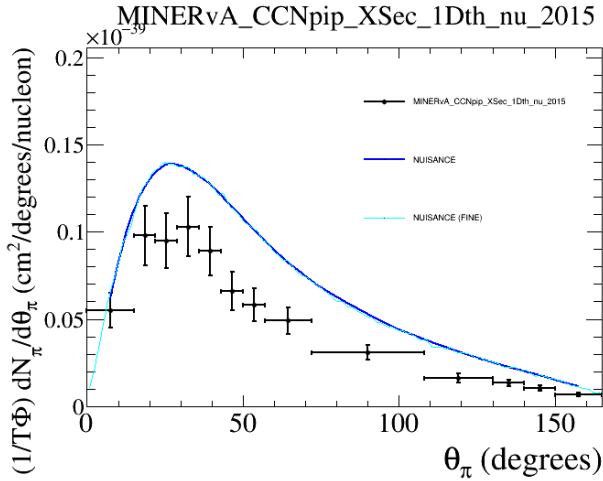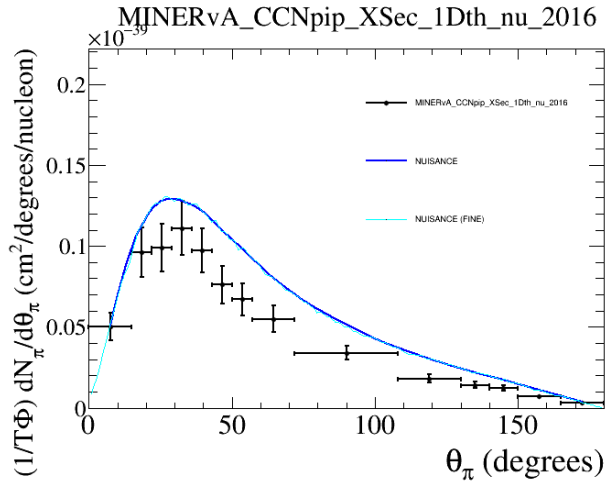
MINERvA_CCNpip_XSec_1Dth_nu_settings

- **name** : MINERvA_CCNpip_XSec_1Dth_nu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCNpip_XSec_1Dth_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : θ_π (degrees)
- **ytitle** : $(1/T\Phi)$ $dN_\pi/d\theta_\pi$ (cm^2/degrees/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCNpip_XSec_1Dth_nu
- **originalname** : MINERvA_CCNpip_XSec_1Dth_nu
- χ^2 : 56.9773
- **NDOF** : 14
- χ^2**/NDOF** : 4.06981

MINERvA_CCNpip_XSec_1Dth_nu_2015

MINERvA_CCNpip_XSec_1Dth_nu_2015_settings

- **name** : MINERvA_CCNpip_XSec_1Dth_nu_2015
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCNpip_XSec_1Dth_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : θ_π (degrees)
- **ytitle** : $(1/T\Phi)$ $dN_\pi/d\theta_\pi$ (cm^2/degrees/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCNpip_XSec_1Dth_nu
- **originalname** : MINERvA_CCNpip_XSec_1Dth_nu_2015
- χ^2 : 80.6474
- **NDOF** : 13
- χ^2**/NDOF** : 6.20364

MINERvA_CCNpip_XSec_1Dth_nu_2016

MINERvA_CCNpip_XSec_1Dth_nu_2015_20deg

MINERvA_CCNpip_XSec_1Dth_nu_2015_fluxcorr

MINERvA_CCNpip_XSec_1Dth_nu_2015_20deg_fluxcorr

MINERvA_CCNpip_XSec_1DTpi_nu

MINERvA_CCNpip_XSec_1DTpi_nu_2015
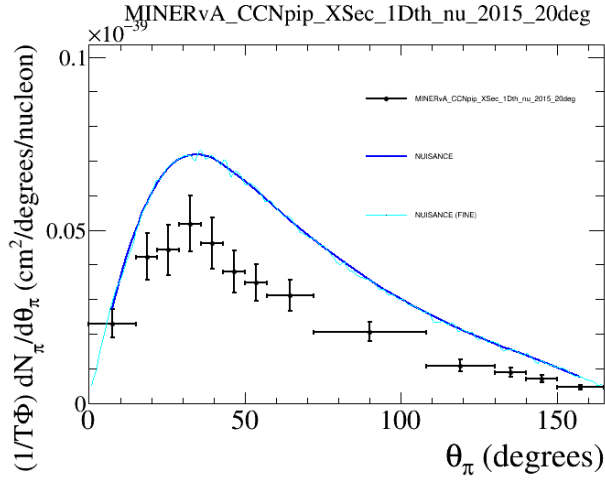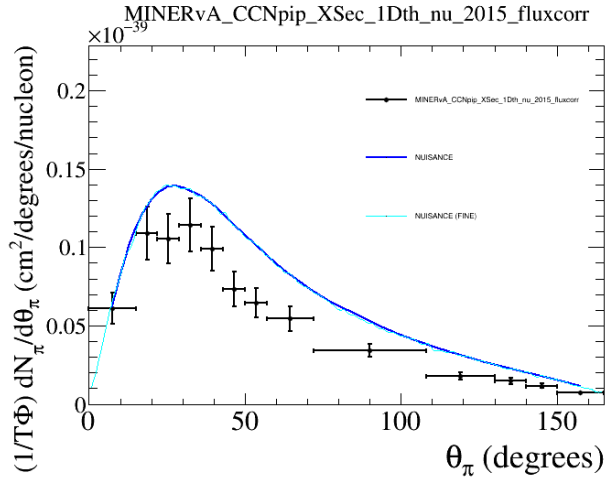
MINERvA_CCNpip_XSec_1DTpi_nu_2016

MINERvA_CCNpip_XSec_1DTpi_nu_2016_settings

- **name** : MINERvA_CCNpip_XSec_1DTpi_nu_2016
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCNpip_XSec_1DTpi_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : T_π (MeV)
- **ytitle** : $(1/T\Phi)$ dN_π/dT_π (cm^2/MeV/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCNpip_XSec_1DTpi_nu
- **originalname** : MINERvA_CCNpip_XSec_1DTpi_nu_2016
- χ^2 : 25.081
- **NDOF** : 7
- χ^2/**NDOF** : 3.583
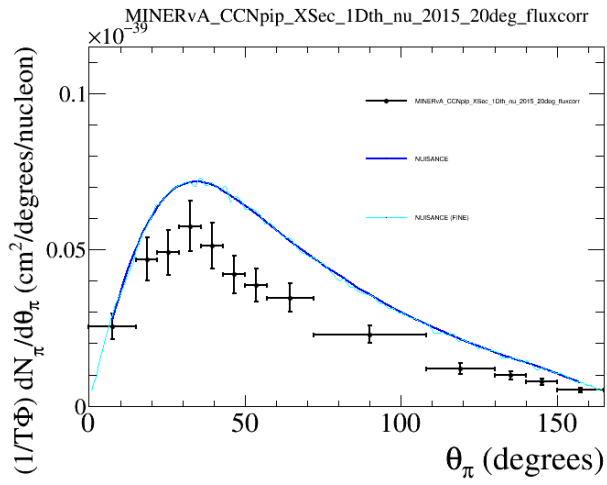
MINERvA_CCNpip_XSec_1DTpi_nu_2015_20deg

MINERvA_CCNpip_XSec_1DTpi_nu_2015_20deg_settings

- **name** : MINERvA_CCNpip_XSec_1DTpi_nu_2015_20deg
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCNpip_XSec_1DTpi_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : T_π (MeV)
- **ytitle** : $(1/T\Phi)$ dN_π/dT_π (cm^2/MeV/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCNpip_XSec_1DTpi_nu
- **originalname** : MINERvA_CCNpip_XSec_1DTpi_nu_2015_20deg
- χ^2 : 41.2664
- **NDOF** : 7
- χ^2/**NDOF** : 5.89519

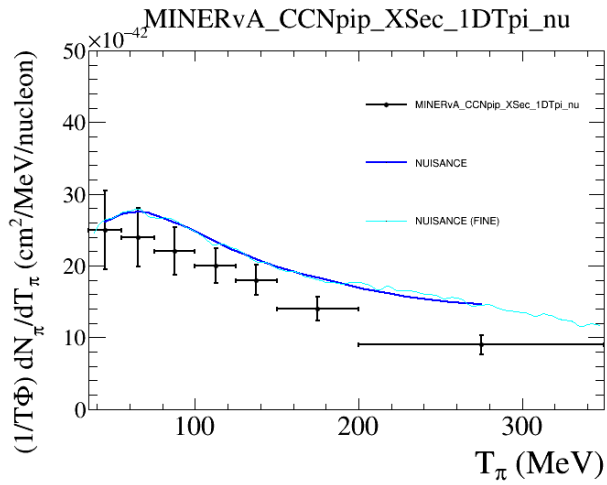## MINERvA_CCNpip_XSec_1DTpi_nu_2015_fluxcorr

MINERvA_CCNpip_XSec_1DTpi_nu_2015_fluxcorr_settings

- **name** : MINERvA_CCNpip_XSec_1DTpi_nu_2015_fluxcorr
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCNpip_XSec_1DTpi_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : T_π (MeV)
- **ytitle** : $(1/T\Phi)$ dN_π/dT_π (cm^2/MeV/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCNpip_XSec_1DTpi_nu
- **originalname** : MINERvA_CCNpip_XSec_1DTpi_nu_2015_fluxcorr
- χ^2 : 31.391
- **NDOF** : 7
- χ^2/**NDOF** : 4.48442

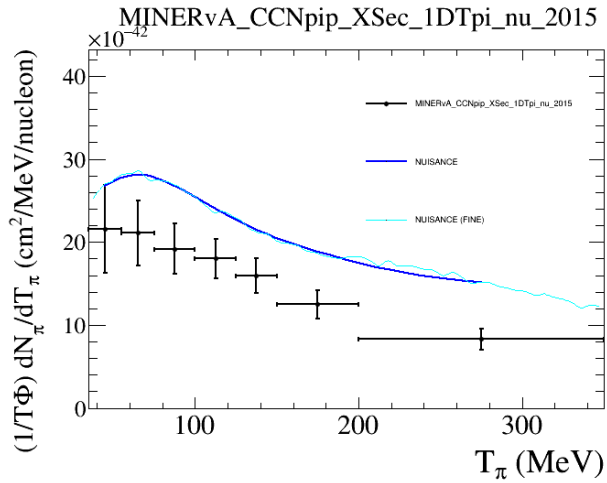## MINERvA_CCNpip_XSec_1DTpi_nu_2015_20deg_fluxcorr

MINERvA_CCNpip_XSec_1DTpi_nu_2015_20deg_fluxcorr_settings

- **name** : MINERvA_CCNpip_XSec_1DTpi_nu_2015_20deg_fluxcorr
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCNpip_XSec_1DTpi_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : T_π (MeV)
- **ytitle** : $(1/T\Phi)\ dN_\pi/dT_\pi$ $(cm^2/MeV/nucleon)$
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCNpip_XSec_1DTpi_nu
- **originalname** : MINERvA_CCNpip_XSec_1DTpi_nu_2015_20deg_fluxcorr
- χ^2 : 36.2671
- **NDOF** : 7
- χ^2/**NDOF** : 5.18101
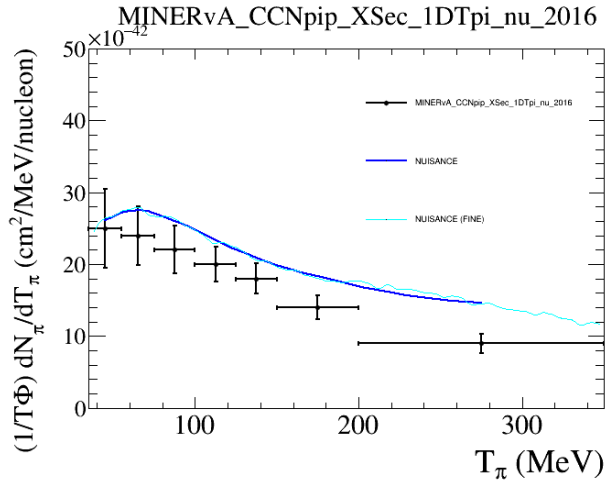
MINERvA_CCNpip_XSec_1Dthmu_nu

MINERvA_CCNpip_XSec_1Dthmu_nu_settings

- **name** : MINERvA_CCNpip_XSec_1Dthmu_nu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCNpip_XSec_1Dthmu_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : θ_μ (degrees)
- **ytitle** : $d\sigma/d\theta_\mu$ $(cm^2/degrees/nucleon)$
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCNpip_XSec_1Dthmu_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCNpip_XSec_1Dthmu_nu
- χ^2 : 20.3228
- **NDOF** : 9
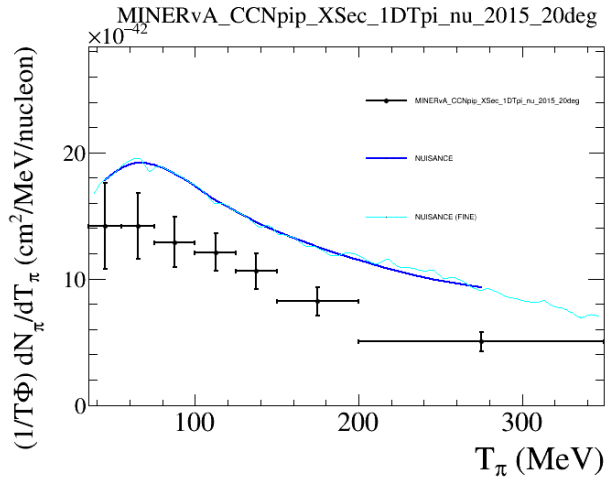- χ^2/**NDOF** : 2.25809

MINERvA_CCNpip_XSec_1Dpmu_nu

MINERvA_CCNpip_XSec_1Dpmu_nu_settings

- **name** : MINERvA_CCNpip_XSec_1Dpmu_nu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCNpip_XSec_1Dpmu_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : p_μ (GeV)
- **ytitle** : $d\sigma/dp_\mu$ $(cm^2/GeV/nucleon)$
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCNpip_XSec_1Dpmu_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCNpip_XSec_1Dpmu_nu
- χ^2 : 35.7957
- **NDOF** : 9
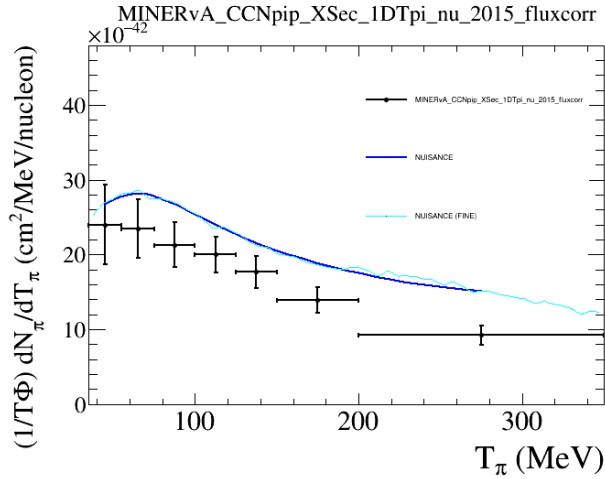- χ^2/**NDOF** : 3.97731

MINERvA_CCNpip_XSec_1DQ2_nu

MINERvA_CCNpip_XSec_1DQ2_nu_settings

- **name** : MINERvA_CCNpip_XSec_1DQ2_nu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCNpip_XSec_1DQ2_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : Q^2 (GeV^2)
- **ytitle** : dσ/dQ^2 (cm^2/GeV^2/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCNpip_XSec_1DQ2_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCNpip_XSec_1DQ2_nu
- **χ^2** : 15.5382
- **NDOF** : 8
- **χ^2/NDOF** : 1.94227

MINERvA_CCNpip_XSec_1DEnu_nu
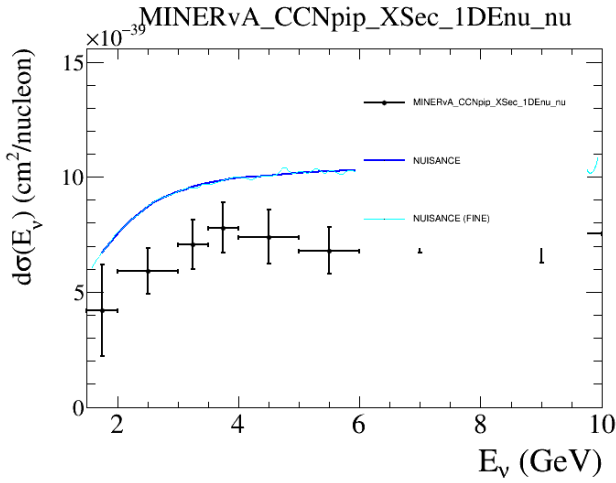
MINERvA_CCNpip_XSec_1DEnu_nu_settings

- **name** : MINERvA_CCNpip_XSec_1DEnu_nu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCNpip_XSec_1DEnu_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : E_ν (GeV)
- **ytitle** : dσ(E_ν) (cm^2/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CCNpip_XSec_1DEnu_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCNpip_XSec_1DEnu_nu
- **χ^2** : 19.1013
- **NDOF** : 8
- **χ^2/NDOF** : 2.38766

MINERvA_CC1pip_XSec_1DTpi_nu_2017
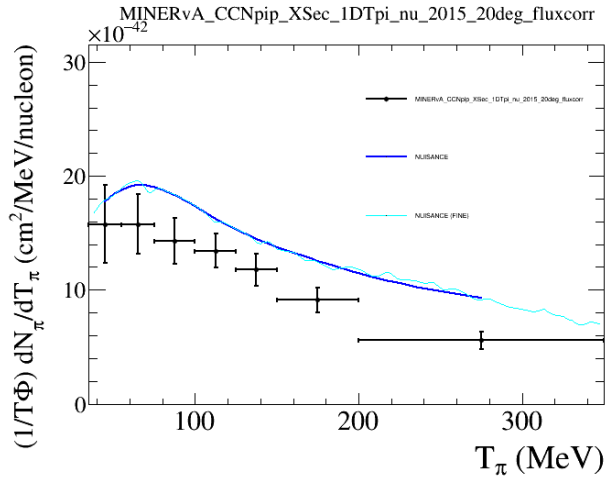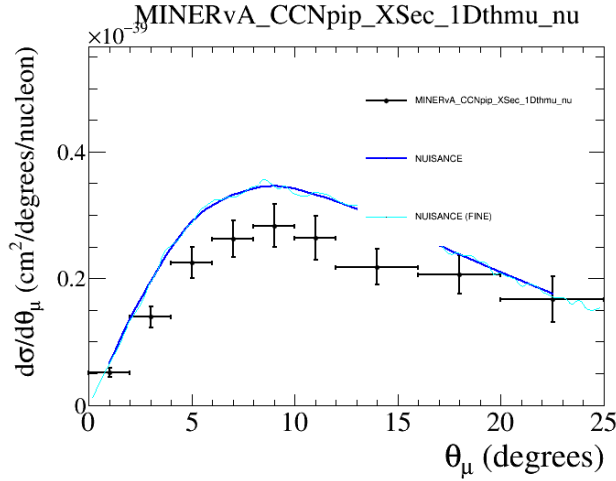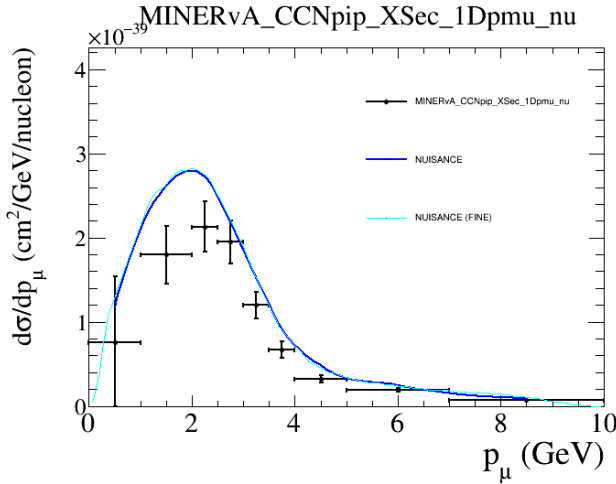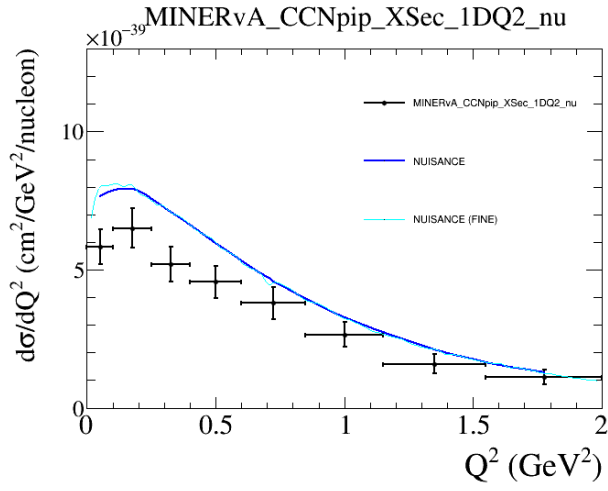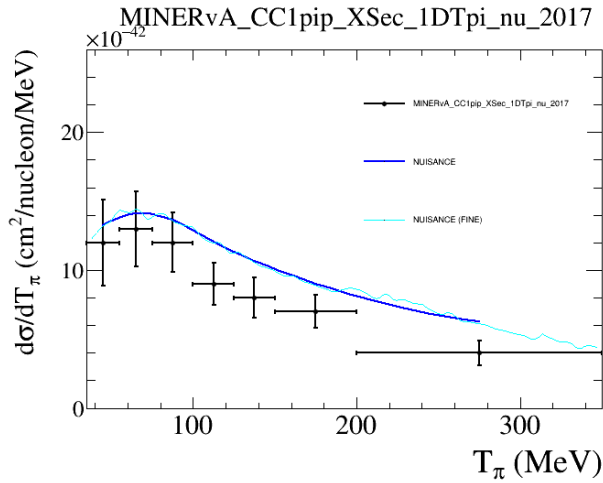
MINERvA_CC1pip_XSec_1DTpi_nu_2017_settings

- **name** : MINERvA_CC1pip_XSec_1DTpi_nu_2017
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **description** :
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numu ONLY
  |--> Signal: Any event with 1 muon, and 1pi+ or 1pi- in FS. W < 1.4
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **title** : CC1π Updated
- **xtitle** : T_π (MeV)
- **ytitle** : dσ/dT_π (cm^2/nucleon/MeV)
- **originalname** : MINERvA_CC1pip_XSec_1DTpi_nu_2017
- **χ^2** : 13.5007
- **NDOF** : 7
- **χ^2/NDOF** : 1.92868

MINERvA_CC1pip_XSec_1Dth_nu_2017

MINERvA_CC1pip_XSec_1Dpmu_nu_2017

MINERvA_CC1pip_XSec_1Dthmu_nu_2017

MINERvA_CC1pip_XSec_1DQ2_nu_2017

MINERvA_CC1pip_XSec_1DQ2_nu_2017_settings

- **name** : MINERvA_CC1pip_XSec_1DQ2_nu_2017
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **description** :
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numu ONLY
  |--> Signal: Any event with 1 muon, and 1pi+ or 1pi- in FS. W < 1.4
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **title** : CC1π Updated
- **xtitle** : Q^2 (GeV^2)
- **ytitle** : dσ/dQ^2 (cm^2/nucleon/GeV^2)
- **originalname** : MINERvA_CC1pip_XSec_1DQ2_nu_2017
- **χ^2** : 15.6999
- **NDOF** : 8
- **χ^2/NDOF** : 1.96249

MINERvA_CC1pip_XSec_1DEnu_nu_2017
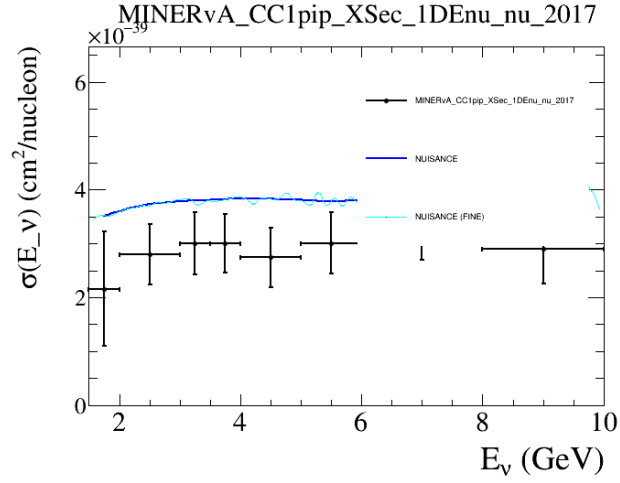
MINERvA_CC1pip_XSec_1DEnu_nu_2017_settings

- **name** : MINERvA_CC1pip_XSec_1DEnu_nu_2017
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **description** :
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numu ONLY
  |--> Signal: Any event with 1 muon, and 1pi+ or 1pi- in FS. W < 1.4
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **title** : CC1π Updated
- **xtitle** : E_ν (GeV)
- **ytitle** : $\sigma(E\_v)$ (cm^2/nucleon)
- **originalname** : MINERvA_CC1pip_XSec_1DEnu_nu_2017
- **χ^2** : 7.03107
- **NDOF** : 8
- **χ^2/NDOF** : 0.878883
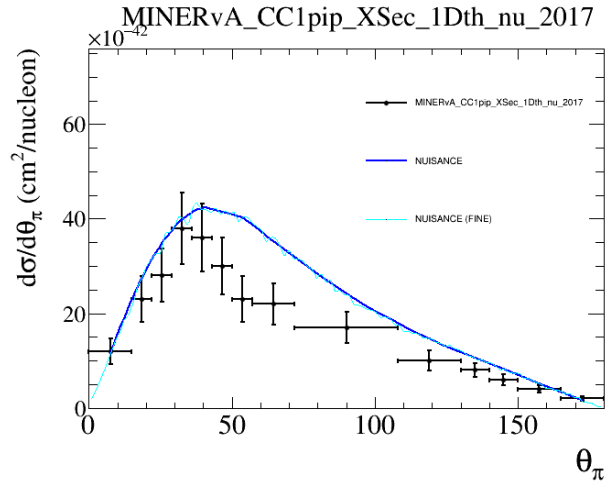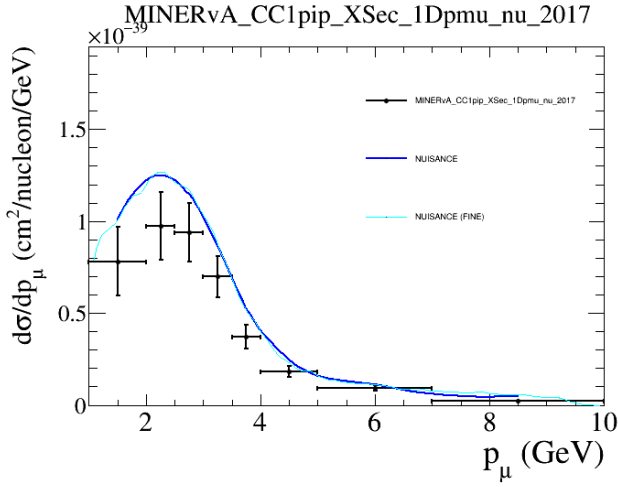
MINERvA_CC1pi0_XSec_1Dth_antinu

MINERvA_CC1pi0_XSec_1Dth_antinu_settings

- **name** : MINERvA_CC1pi0_XSec_1Dth_antinu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pi0_XSec_1Dth_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numubar
  |--> Signal: Any event with 1 muon, 1 pion, no other tracks
- **xtitle** : θ_π (degrees)
- **ytitle** : dσ/dθ_π (cm^2/nucleon/degree)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pi0_XSec_1Dth_antinu
- **originalname** : MINERvA_CC1pi0_XSec_1Dth_antinu
- **χ^2** : 7.75216
- **NDOF** : 11
- **χ^2/NDOF** : 0.704742

MINERvA_CC1pi0_XSec_1Dth_antinu_2015

MINERvA_CC1pi0_XSec_1Dth_antinu_2015_settings

- **name** : MINERvA_CC1pi0_XSec_1Dth_antinu_2015
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pi0_XSec_1Dth_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numubar
  |--> Signal: Any event with 1 muon, 1 pion, no other tracks
- **xtitle** : θ_π (degrees)
- **ytitle** : $d\sigma/d\theta_\pi$ (cm^2/nucleon/degree)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pi0_XSec_1Dth_antinu
- **originalname** : MINERvA_CC1pi0_XSec_1Dth_antinu_2015
- χ^2 : 17.2829
- **NDOF** : 11
- χ^2/**NDOF** : 1.57117

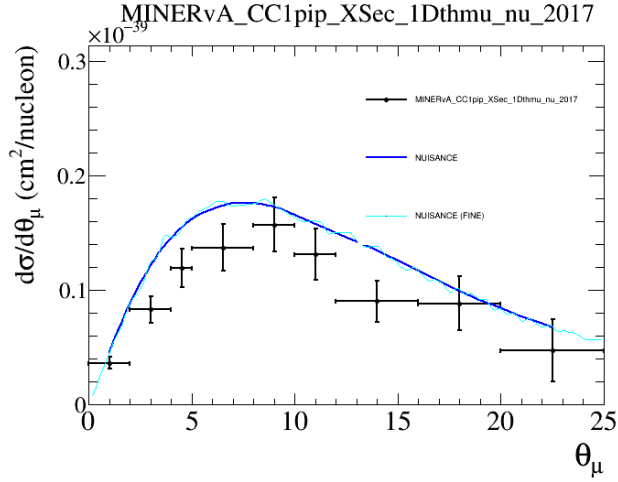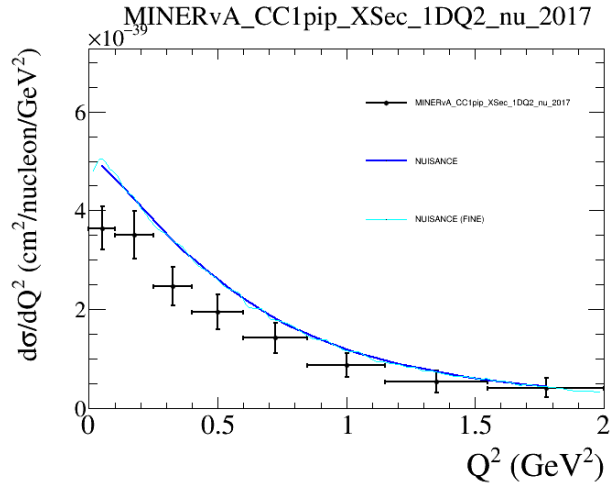## MINERvA_CC1pi0_XSec_1Dth_antinu_2016

MINERvA_CC1pi0_XSec_1Dth_antinu_2016_settings

- **name** : MINERvA_CC1pi0_XSec_1Dth_antinu_2016
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pi0_XSec_1Dth_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numubar
  |--> Signal: Any event with 1 muon, 1 pion, no other tracks
- **xtitle** : θ_π (degrees)
- **ytitle** : $d\sigma/d\theta_\pi$ (cm^2/nucleon/degree)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pi0_XSec_1Dth_antinu
- **originalname** : MINERvA_CC1pi0_XSec_1Dth_antinu_2016
- χ^2 : 7.75216
- **NDOF** : 11
- χ^2/**NDOF** : 0.704742

MINERvA_CC1pi0_XSec_1Dth_antinu_fluxcorr

MINERvA_CC1pi0_XSec_1Dth_antinu_fluxcorr_settings

- **name** : MINERvA_CC1pi0_XSec_1Dth_antinu_fluxcorr
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pi0_XSec_1Dth_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numubar
  |--> Signal: Any event with 1 muon, 1 pion, no other tracks
- **xtitle** : θ_π (degrees)
- **ytitle** : $d\sigma/d\theta_\pi$ (cm^2/nucleon/degree)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pi0_XSec_1Dth_antinu
- **originalname** : MINERvA_CC1pi0_XSec_1Dth_antinu_fluxcorr
- χ^2 : 8.74057
- **NDOF** : 11
- χ^2/**NDOF** : 0.794597

MINERvA_CC1pi0_XSec_1Dth_antinu_2015_fluxcorr

MINERvA_CC1pi0_XSec_1Dth_antinu_2015_fluxcorr_settings

• **name** : MINERvA_CC1pi0_XSec_1Dth_antinu_2015_fluxcorr
• **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
• **type** : DEFAULT
• **description** :
  |--> MINERvA_CC1pi0_XSec_1Dth_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numubar
  |--> Signal: Any event with 1 muon, 1 pion, no other tracks
• **xtitle** : θ_π (degrees)
• **ytitle** : $d\sigma/d\theta_\pi$ (cm^2/nucleon/degree)
• **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
• **allowed_types** : FIX/FULL
• **enu_min** : 1.5
• **enu_max** : 10
• **title** : MINERvA_CC1pi0_XSec_1Dth_antinu
• **originalname** : MINERvA_CC1pi0_XSec_1Dth_antinu_2015_fluxcorr
• χ^2 : 14.3668
• **NDOF** : 11
• χ^2/**NDOF** : 1.30607

MINERvA_CC1pi0_XSec_1Dth_antinu_2016_fluxcorr

MINERvA_CC1pi0_XSec_1Dth_antinu_2016_fluxcorr_settings

• **name** : MINERvA_CC1pi0_XSec_1Dth_antinu_2016_fluxcorr
• **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
• **type** : DEFAULT
• **description** :
  |--> MINERvA_CC1pi0_XSec_1Dth_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numubar
  |--> Signal: Any event with 1 muon, 1 pion, no other tracks
• **xtitle** : θ_π (degrees)
• **ytitle** : $d\sigma/d\theta_\pi$ (cm^2/nucleon/degree)
• **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
• **allowed_types** : FIX/FULL
• **enu_min** : 1.5
• **enu_max** : 10
• **title** : MINERvA_CC1pi0_XSec_1Dth_antinu
• **originalname** : MINERvA_CC1pi0_XSec_1Dth_antinu_2016_fluxcorr
• χ^2 : 8.74057
• **NDOF** : 11
• χ^2/**NDOF** : 0.794597
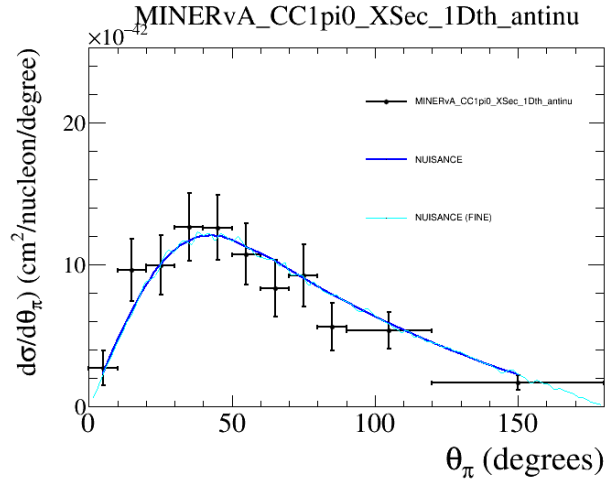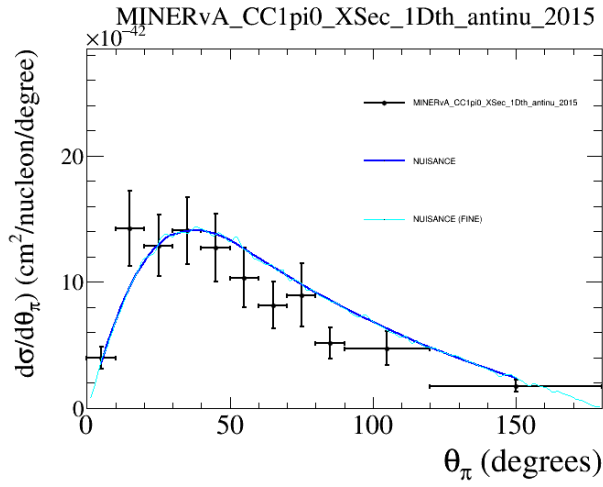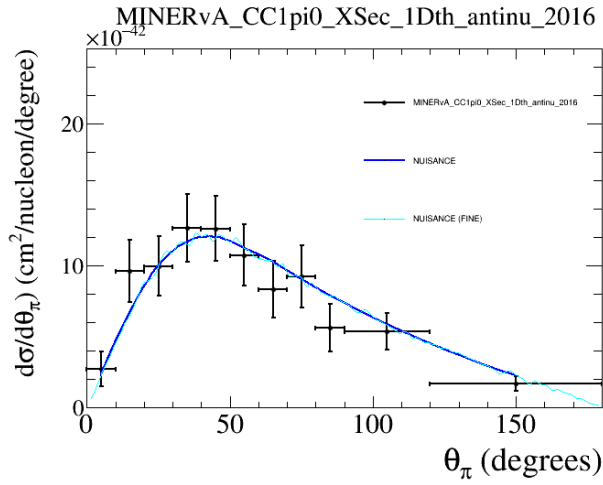
MINERvA_CC1pi0_XSec_1Dppi0_antinu
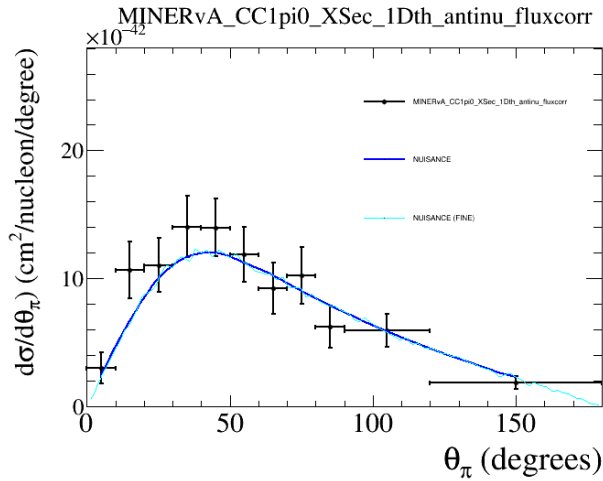

MINERvA_CC1pi0_XSec_1Dppi0_antinu_settings

• **name** : MINERvA_CC1pi0_XSec_1Dppi0_antinu
• **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
• **type** : DEFAULT
• **description** :
  |--> MINERvA_CC1pi0_XSec_1Dppi0_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numubar
  |--> Signal: Any event with 1 muon, 1 pion, no other tracks
• **xtitle** : p_{π^0} (GeV/c)
• **ytitle** : $d\sigma/dp_{\pi^0}$ (cm^2/(GeV/c)/nucleon)
• **default_types** : FIX,FREE,SHAPE/DIAG/NORM/MASK
• **allowed_types** : FIX/DIAG
• **enu_min** : 1.5
• **enu_max** : 10
• **title** : MINERvA_CC1pi0_XSec_1Dppi0_antinu
• **originalname** : MINERvA_CC1pi0_XSec_1Dppi0_antinu
• χ^2 : 41.0959
• **NDOF** : 11
• χ^2/**NDOF** : 3.73599

MINERvA_CC1pi0_XSec_1Dppi0_antinu_fluxcorr

MINERvA_CC1pi0_XSec_1Dppi0_antinu_fluxcorr_settings

- **name** : MINERvA_CC1pi0_XSec_1Dppi0_antinu_fluxcorr
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pi0_XSec_1Dppi0_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numubar
  |--> Signal: Any event with 1 muon, 1 pion, no other tracks
- **xtitle** : p_{π^0} (GeV/c)
- **ytitle** : $d\sigma/dp_{\pi^0}$ (cm^2/(GeV/c)/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG/NORM/MASK
- **allowed_types** : FIX/DIAG
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pi0_XSec_1Dppi0_antinu
- **originalname** : MINERvA_CC1pi0_XSec_1Dppi0_antinu_fluxcorr
- χ^2 : 29.9674
- **NDOF** : 11
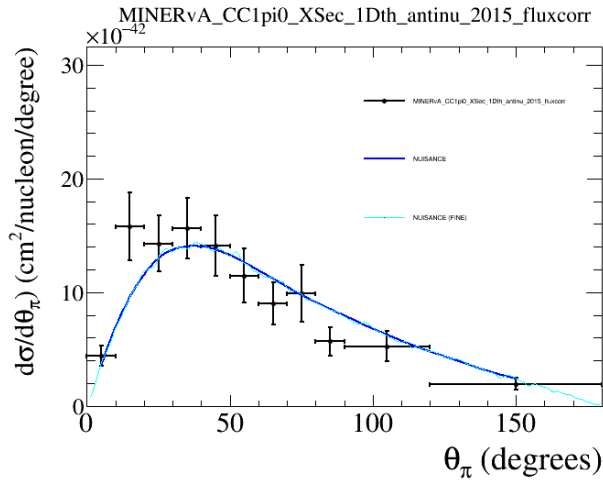- χ^2/**NDOF** : 2.72431

MINERvA_CC1pi0_XSec_1DTpi0_antinu

MINERvA_CC1pi0_XSec_1DTpi0_antinu_settings

- **name** : MINERvA_CC1pi0_XSec_1DTpi0_antinu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pi0_XSec_1DTpi0_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numubar
  |--> Signal: Any event with 1 muon, 1 pion, no other tracks
- **xtitle** : T_π (GeV)
- **ytitle** : $d\sigma/dT_\pi$ (cm^2/GeV/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pi0_XSec_1DTpi0_antinu
- **originalname** : MINERvA_CC1pi0_XSec_1DTpi0_antinu
- χ^2 : 10.5678
- **NDOF** : 7
- χ^2/**NDOF** : 1.50969

MINERvA_CC1pi0_XSec_1DQ2_antinu

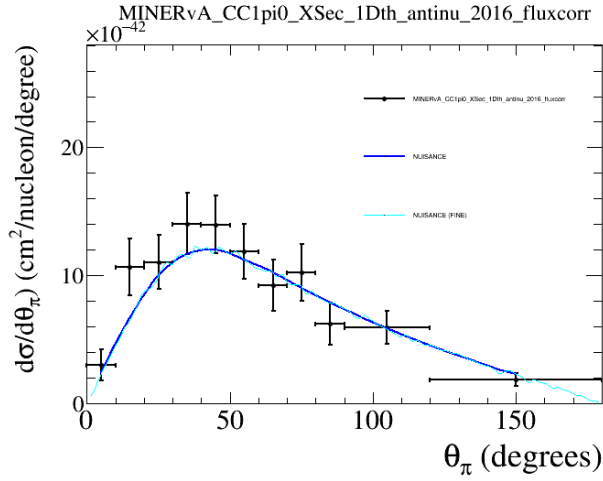MINERvA_CC1pi0_XSec_1DQ2_antinu_settings

- **name** : MINERvA_CC1pi0_XSec_1DQ2_antinu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pi0_XSec_1DQ2_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numubar
  |--> Signal: Any event with 1 muon, 1 pion, no other tracks
- **xtitle** : Q^2 (GeV^2)
- **ytitle** : $d\sigma/dQ^2$ (cm^2/(GeV^2)/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG/NORM/MASK
- **allowed_types** : FIX/DIAG
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pi0_XSec_1DQ2_antinu
- **originalname** : MINERvA_CC1pi0_XSec_1DQ2_antinu
- χ^2 : 10.4201
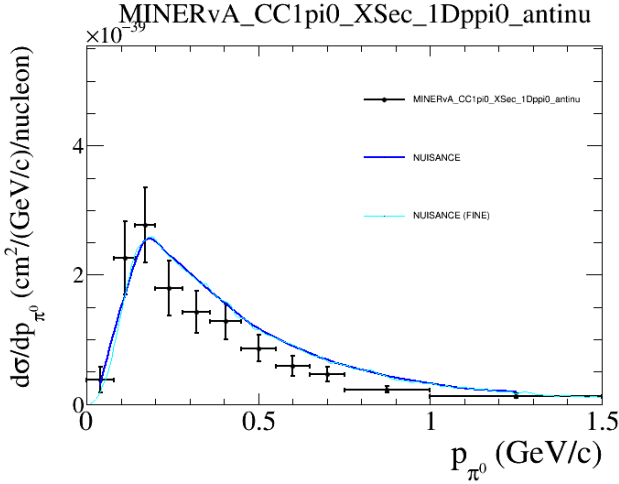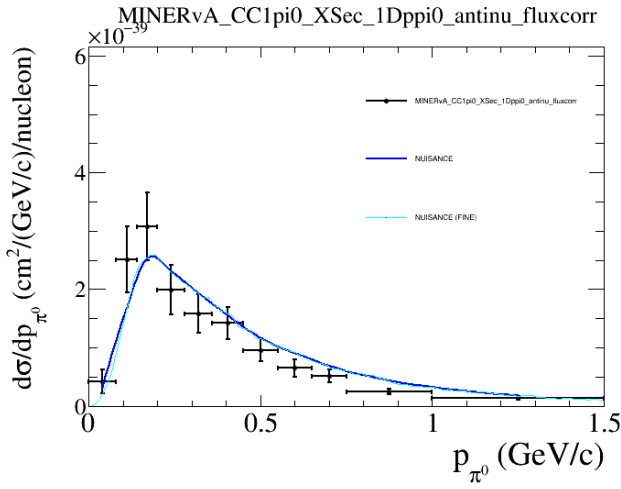- **NDOF** : 8
- χ^2/**NDOF** : 1.30251

MINERvA_CC1pi0_XSec_1Dthmu_antinu

MINERvA_CC1pi0_XSec_1Dthmu_antinu_settings

- **name** : MINERvA_CC1pi0_XSec_1Dthmu_antinu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pi0_XSec_1Dthmu_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numubar
  |--> Signal: Any event with 1 muon, 1 pion, no other tracks
- **xtitle** : θ_μ
- **ytitle** : $d\sigma/d\theta_\mu$ (cm^2/degrees/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG/NORM/MASK
- **allowed_types** : FIX/DIAG
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pi0_XSec_1Dthmu_antinu
- **originalname** : MINERvA_CC1pi0_XSec_1Dthmu_antinu
- χ^2 : 10.5358
- **NDOF** : 9
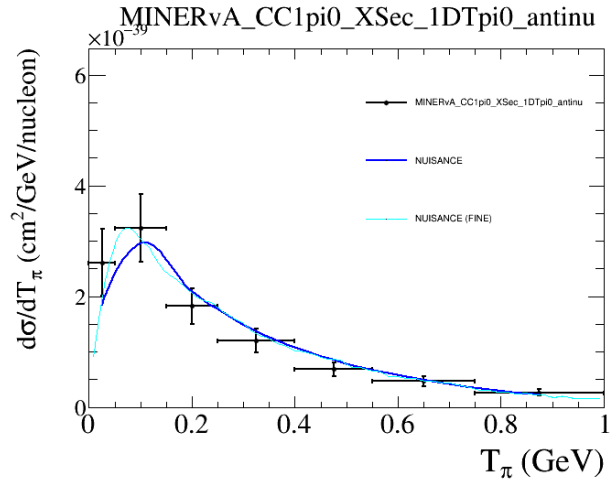- χ^2/**NDOF** : 1.17064

MINERvA_CC1pi0_XSec_1Dpmu_antinu

MINERvA_CC1pi0_XSec_1Dpmu_antinu_settings

- **name** : MINERvA_CC1pi0_XSec_1Dpmu_antinu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pi0_XSec_1Dpmu_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numubarr
  |--> Signal: Any event with 1 muon, 1 pion, no other tracks
- **xtitle** : p_μ (GeV)
- **ytitle** : $d\sigma/dp_\mu$ (cm^2/GeV/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG/NORM/MASK
- **allowed_types** : FIX/DIAG
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pi0_XSec_1Dpmu_antinu
- **originalname** : MINERvA_CC1pi0_XSec_1Dpmu_antinu
- χ^2 : 7.07499
- **NDOF** : 9
- χ^2/**NDOF** : 0.78611

MINERvA_CC1pi0_XSec_1DEnu_antinu
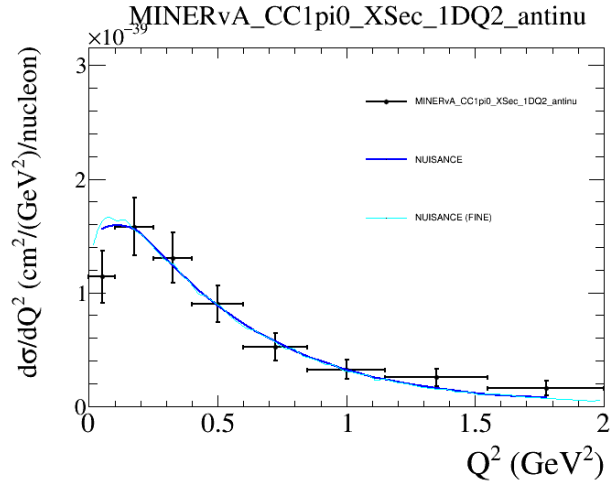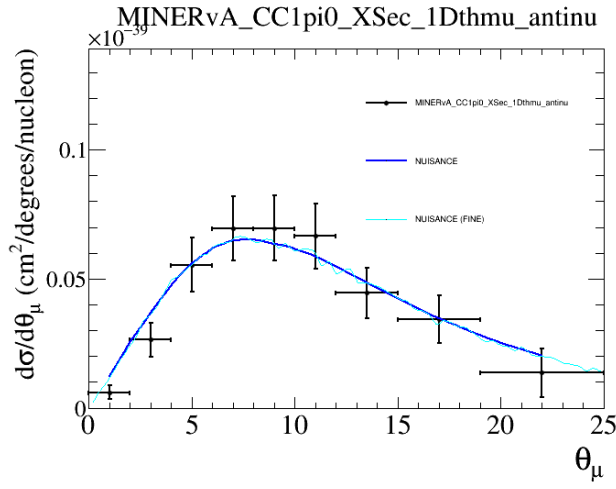
MINERvA_CC1pi0_XSec_1DEnu_antinu_settings

- **name** : MINERvA_CC1pi0_XSec_1DEnu_antinu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pi0_XSec_1DEnu_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numubar
  |--> Signal: Any event with 1 muon, 1 pion, no other tracks
- **xtitle** : E_ν (GeV)
- **ytitle** : $\sigma(E_\nu$ (cm^2/nucleon)
- **default_types** : FIX,FREE,SHAPE/DIAG/NORM/MASK
- **allowed_types** : FIX/DIAG
- **enu_min** : 1.5
- **enu_max** : 10
- **title** : MINERvA_CC1pi0_XSec_1DEnu_antinu
- **originalname** : MINERvA_CC1pi0_XSec_1DEnu_antinu
- χ^2 : 6.15226
- **NDOF** : 8
- χ^2/**NDOF** : 0.769033

MINERvA_CCCOHPI_XSec_1DEnu_nu

MINERvA_CCCOHPI_XSec_1DEnu_nu_settings

- **name** : MINERvA_CCCOHPI_XSec_1DEnu_nu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCCOHPI_XSec_1DEnu_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numu
  |--> Signal: Any event with 1 mu-, 1pi+, and no other FS particles
- **xtitle** : E_ν (GeV)
- **ytitle** : $d\sigma/dE_\nu$ (cm^2/GeV/C^{12})
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 20
- **title** : MINERvA_CCCOHPI_XSec_1DEnu_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCCOHPI_XSec_1DEnu_nu
- **χ²** : 14272.4
- **NDOF** : 9
- **χ²/NDOF** : 1585.83

MINERvA_CCCOHPI_XSec_1DEpi_nu

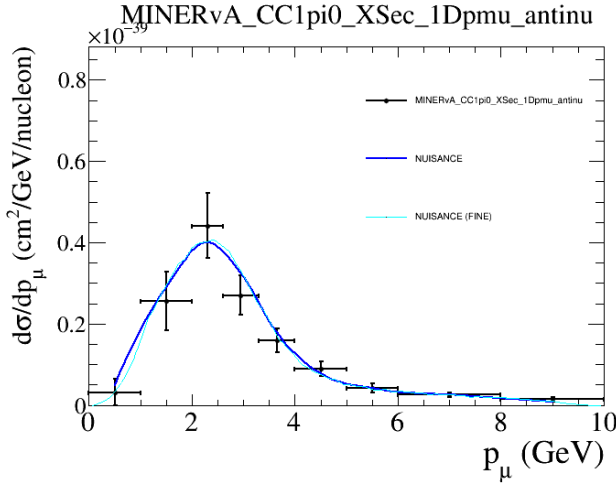MINERvA_CCCOHPI_XSec_1DEpi_nu_settings

- **name** : MINERvA_CCCOHPI_XSec_1DEpi_nu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCCOHPI_XSec_1DEpi_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numu
  |--> Signal: Any event with 1 mu-, 1pi+, and no other FS particles
- **xtitle** : E_π (GeV)
- **ytitle** : $d\sigma/dE_\pi$ (cm^2/GeV/C^{12})
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 20
- **title** : MINERvA_CCCOHPI_XSec_1DEpi_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCCOHPI_XSec_1DEpi_nu
- **χ²** : -95.0237
- **NDOF** : 9
- **χ²/NDOF** : -10.5582

MINERvA_CCCOHPI_XSec_1Dth_nu
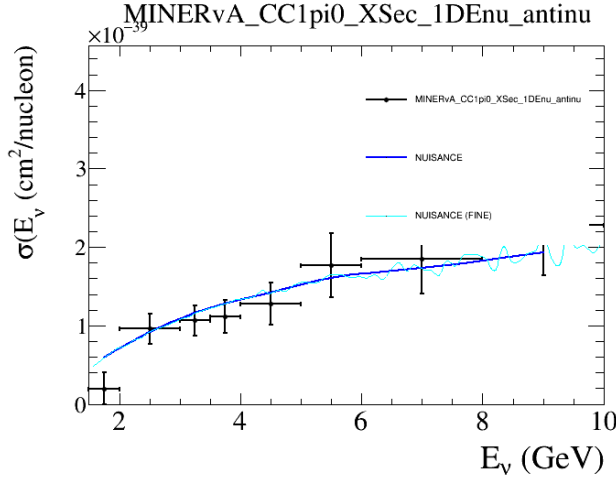
MINERvA_CCCOHPI_XSec_1Dth_nu_settings

- **name** : MINERvA_CCCOHPI_XSec_1Dth_nu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.CH.2500000.1.prepared
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCCOHPI_XSec_1Dth_nu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current numu
  |--> Signal: Any event with 1 mu-, 1pi+, and no other FS particles
- **xtitle** : θ_π (deg.)
- **ytitle** : $d\sigma/d\theta_\pi$ (cm^2/deg./C^{12})
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 20
- **title** : MINERvA_CCCOHPI_XSec_1Dth_nu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCCOHPI_XSec_1Dth_nu
- **χ²** : 43.6129
- **NDOF** : 12
- **χ²/NDOF** : 3.6344
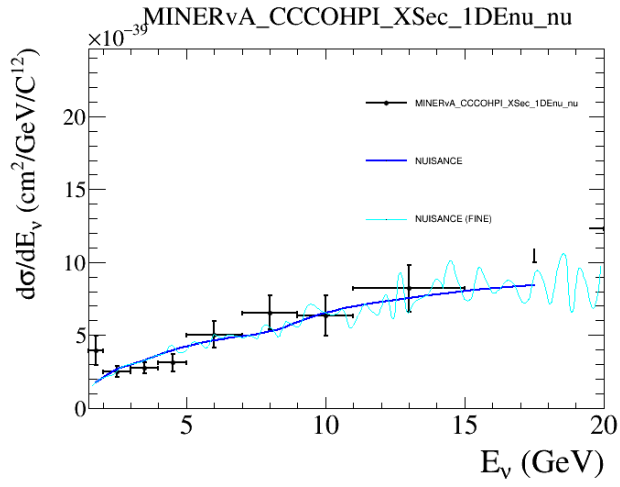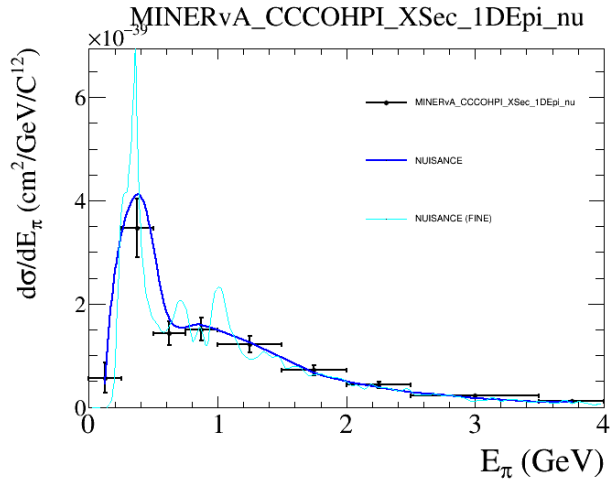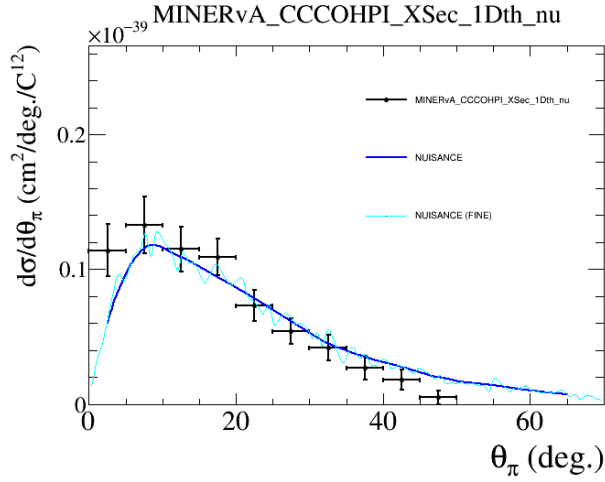
MINERvA_CCCOHPI_XSec_1DEnu_antinu

MINERvA_CCCOHPI_XSec_1DEnu_antinu_settings

- **name** : MINERvA_CCCOHPI_XSec_1DEnu_antinu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCCOHPI_XSec_1DEnu_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Reverse Horn Current numu
  |--> Signal: Any event with 1 mu+, 1pi-, and no other FS particles
- **xtitle** : E_ν (GeV)
- **ytitle** : $d\sigma/dE_\nu$ $(cm^2/GeV/C^{12})$
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 20
- **title** : MINERvA_CCCOHPI_XSec_1DEnu_antinu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCCOHPI_XSec_1DEnu_antinu
- χ^2 : 39.8795
- **NDOF** : 9
- χ^2/**NDOF** : 4.43105

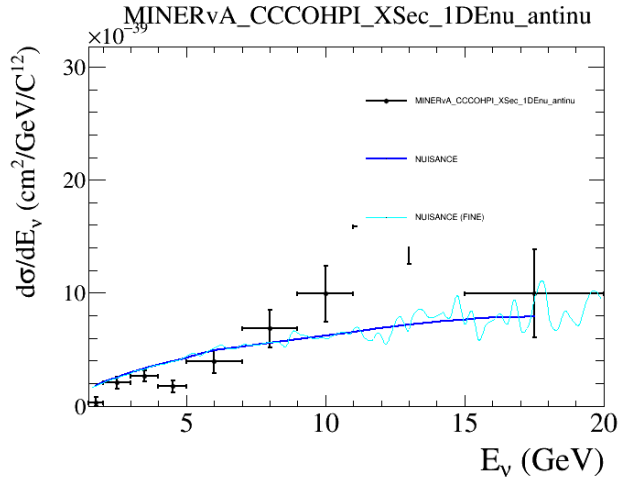## MINERvA_CCCOHPI_XSec_1DEpi_antinu

MINERvA_CCCOHPI_XSec_1DEpi_antinu_settings

- **name** : MINERvA_CCCOHPI_XSec_1DEpi_antinu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCCOHPI_XSec_1DEpi_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Reverse Horn Current numu
  |--> Signal: Any event with 1 mu+, 1pi-, and no other FS particles
- **xtitle** : E_π (GeV)
- **ytitle** : $d\sigma/dE_\pi$ $(cm^2/GeV/C^{12})$
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 20
- **title** : MINERvA_CCCOHPI_XSec_1DEpi_antinu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCCOHPI_XSec_1DEpi_antinu
- χ^2 : 8.19465
- **NDOF** : 9
- χ^2/**NDOF** : 0.910517
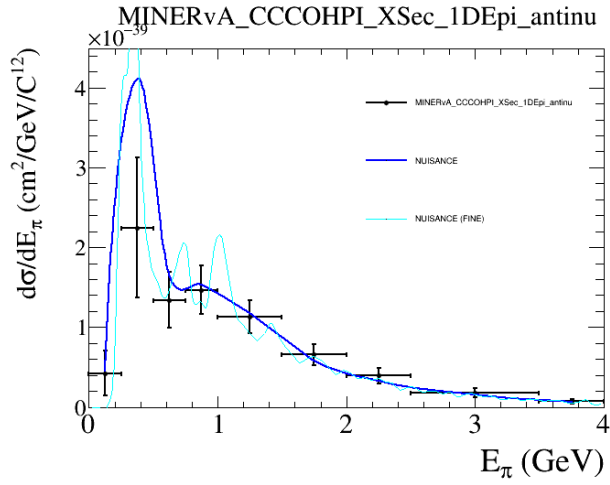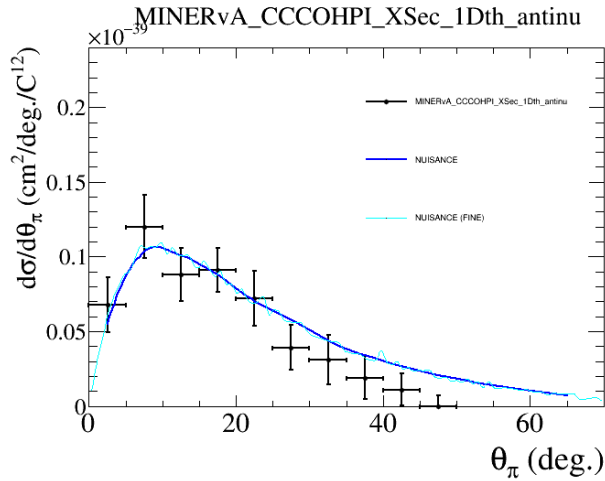
MINERvA_CCCOHPI_XSec_1Dth_antinu

MINERvA_CCCOHPI_XSec_1Dth_antinu_settings

- **name** : MINERvA_CCCOHPI_XSec_1Dth_antinu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCCOHPI_XSec_1Dth_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Reverse Horn Current numu
  |--> Signal: Any event with 1 mu+, 1pi-, and no other FS particles
- **xtitle** : θ_π (deg.)
- **ytitle** : $d\sigma/d\theta_\pi$ $(cm^2/deg./C^{12})$
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 1.5
- **enu_max** : 20
- **title** : MINERvA_CCCOHPI_XSec_1Dth_antinu
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCCOHPI_XSec_1Dth_antinu
- χ^2 : 19.2385
- **NDOF** : 12
- χ^2/**NDOF** : 1.60321

MINERvA_CCinc_XSec_1Dx_ratio_C12_CH

MINERvA_CCinc_XSec_1Dx_ratio_C12_CH_settings

- **name** : MINERvA_CCinc_XSec_1Dx_ratio_C12_CH
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.C.2500000.5.prepared.r
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCinc_XSec_1Dx_ratio sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : Reconstructed Bjorken x
- **ytitle** : $d\sigma/dx$ (cm^2/nucleon)
- **default_types** : FIX/DIAG,FULL/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 0
- **enu_max** : 20
- **title** : MINERvA_CCinc_XSec_1Dx_ratio
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCinc_XSec_1Dx_ratio_C12_CH
- **χ^2** : 4.94164
- **NDOF** : 6
- **χ^2/NDOF** : 0.823606

MINERvA_CCinc_XSec_1Dx_ratio_Fe56_CH

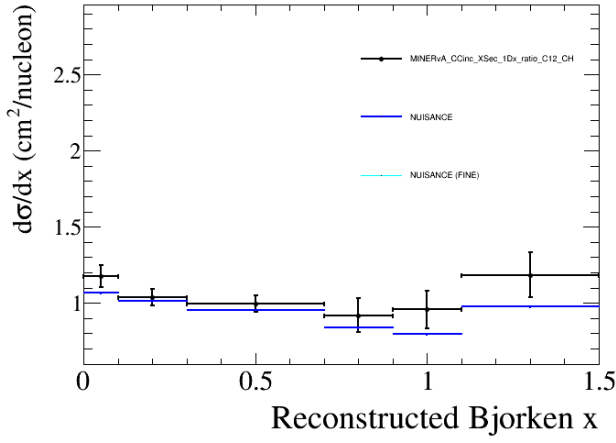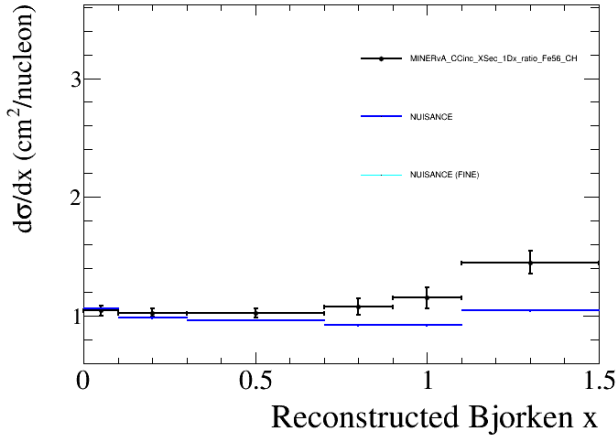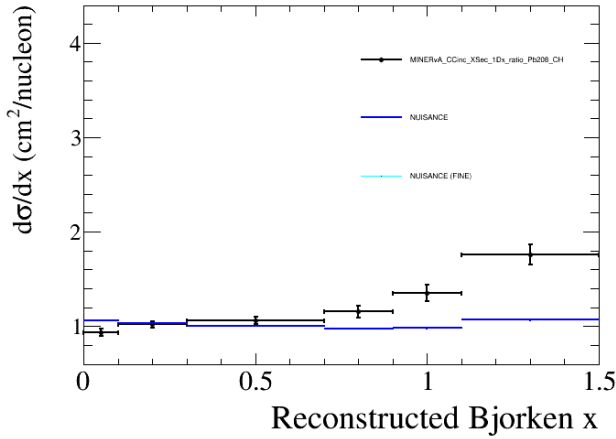### MINERvA_CCinc_XSec_1Dx_ratio_Fe56_CH_settings

- **name** : MINERvA_CCinc_XSec_1Dx_ratio_Fe56_CH
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.Fe.2500000.6.prepared.
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCinc_XSec_1Dx_ratio sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : Reconstructed Bjorken x
- **ytitle** : $d\sigma/dx$ (cm^2/nucleon)
- **default_types** : FIX/DIAG,FULL/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 0
- **enu_max** : 20
- **title** : MINERvA_CCinc_XSec_1Dx_ratio
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCinc_XSec_1Dx_ratio_Fe56_CH
- **χ^2** : 26.7859
- **NDOF** : 6
- **χ^2/NDOF** : 4.46431

MINERvA_CCinc_XSec_1Dx_ratio_Pb208_CH

MINERvA_CCinc_XSec_1Dx_ratio_Pb208_CH_settings

- **name** : MINERvA_CCinc_XSec_1Dx_ratio_Pb208_CH
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.Pb.2500000.7.prepared.
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCinc_XSec_1Dx_ratio sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : Reconstructed Bjorken x
- **ytitle** : $d\sigma/dx$ (cm^2/nucleon)
- **default_types** : FIX/DIAG,FULL/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 0
- **enu_max** : 20
- **title** : MINERvA_CCinc_XSec_1Dx_ratio
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCinc_XSec_1Dx_ratio_Pb208_CH
- **χ^2** : 85.4475
- **NDOF** : 6
- **χ^2/NDOF** : 14.2413
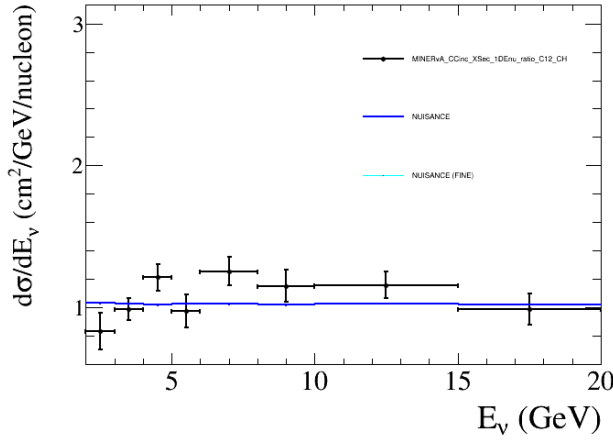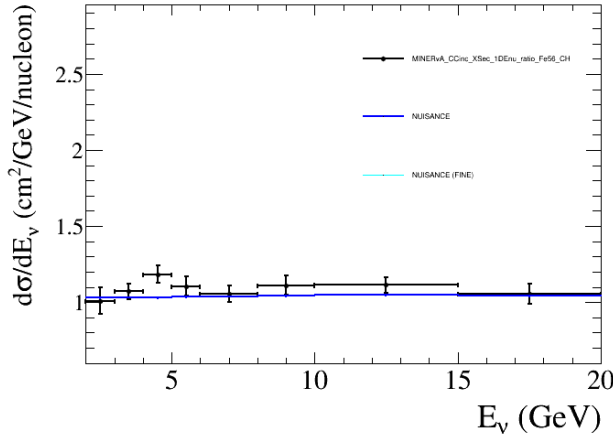
MINERvA_CCinc_XSec_1DEnu_ratio_C12_CH

MINERvA_CCinc_XSec_1DEnu_ratio_C12_CH_settings

- **name** : MINERvA_CCinc_XSec_1DEnu_ratio_C12_CH
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.C.2500000.5.prepared.r
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCinc_XSec_1DEnu_ratio sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : E_ν (GeV)
- **ytitle** : $d\sigma/dE_\nu$ (cm^2/GeV/nucleon)
- **default_types** : FIX/DIAG,FULL/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 0
- **enu_max** : 20
- **title** : MINERvA_CCinc_XSec_1DEnu_ratio
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCinc_XSec_1DEnu_ratio_C12_CH
- χ^2 : 16.7349
- **NDOF** : 8
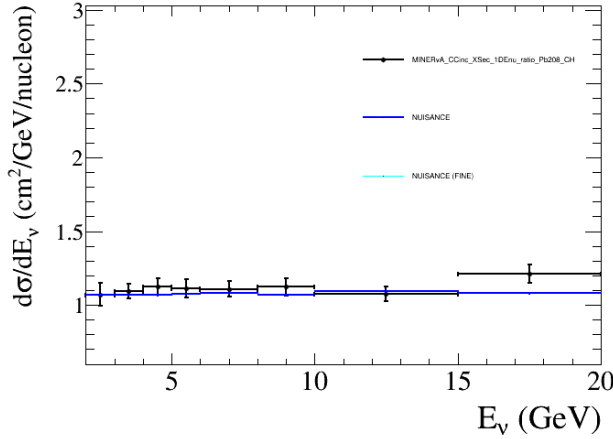- χ^2/**NDOF** : 2.09186

MINERvA_CCinc_XSec_1DEnu_ratio_Fe56_CH

MINERvA_CCinc_XSec_1DEnu_ratio_Fe56_CH_settings

- **name** : MINERvA_CCinc_XSec_1DEnu_ratio_Fe56_CH
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.Fe.2500000.6.prepared.:
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCinc_XSec_1DEnu_ratio sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : E_ν (GeV)
- **ytitle** : $d\sigma/dE_\nu$ (cm^2/GeV/nucleon)
- **default_types** : FIX/DIAG,FULL/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 0
- **enu_max** : 20
- **title** : MINERvA_CCinc_XSec_1DEnu_ratio
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCinc_XSec_1DEnu_ratio_Fe56_CH
- χ^2 : 9.56659
- **NDOF** : 8
- χ^2/**NDOF** : 1.19582

MINERvA_CCinc_XSec_1DEnu_ratio_Pb208_CH

MINERvA_CCinc_XSec_1DEnu_ratio_Pb208_CH_settings

- **name** : MINERvA_CCinc_XSec_1DEnu_ratio_Pb208_CH
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.Pb.2500000.7.prepared.
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CCinc_XSec_1DEnu_ratio sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current nue + nuebar
  |--> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : E_ν (GeV)
- **ytitle** : $d\sigma/dE_\nu$ (cm^2/GeV/nucleon)
- **default_types** : FIX/DIAG,FULL/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 0
- **enu_max** : 20
- **title** : MINERvA_CCinc_XSec_1DEnu_ratio
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCinc_XSec_1DEnu_ratio_Pb208_CH
- χ^2 : 7.18657
- **NDOF** : 8
- χ^2/**NDOF** : 0.898321

MINERvA_CCDIS_XSec_1Dx_ratio_C12_CH

dσ/dx (cm^2/nucleon)

MINERvA_CCDIS_XSec_1Dx_ratio_C12_CH

NUISANCE

NUISANCE (FINE)

Reconstructed Bjorken x

MINERvA_CCDIS_XSec_1Dx_ratio_C12_CH_settings

- **name** : MINERvA_CCDIS_XSec_1Dx_ratio_C12_CH
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.C.2500000.5.prepared.r
- **type** : DEFAULT
- **description** : MINERvA_CCDIS_XSec_1Dx_ratio sample.
- **xtitle** : Reconstructed Bjorken x
- **ytitle** : dσ/dx (cm^2/nucleon)
- **default_types** : FIX/DIAG,FULL/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 5
- **enu_max** : 50
- **title** : MINERvA_CCDIS_XSec_1Dx_ratio
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCDIS_XSec_1Dx_ratio_C12_CH
- χ^2 : 5.98521
- **NDOF** : 5
- χ^2/**NDOF** : 1.19704

MINERvA_CCDIS_XSec_1Dx_ratio_Fe56_CH

dσ/dx (cm^2/nucleon)

MINERvA_CCDIS_XSec_1Dx_ratio_Fe56_CH

NUISANCE

NUISANCE (FINE)

Reconstructed Bjorken x

MINERvA_CCDIS_XSec_1Dx_ratio_Fe56_CH_settings

- **name** : MINERvA_CCDIS_XSec_1Dx_ratio_Fe56_CH
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.Fe.2500000.6.prepared.
- **type** : DEFAULT
- **description** : MINERvA_CCDIS_XSec_1Dx_ratio sample.
- **xtitle** : Reconstructed Bjorken x
- **ytitle** : dσ/dx (cm^2/nucleon)
- **default_types** : FIX/DIAG,FULL/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 5
- **enu_max** : 50
- **title** : MINERvA_CCDIS_XSec_1Dx_ratio
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCDIS_XSec_1Dx_ratio_Fe56_CH
- χ^2 : 5.39085
- **NDOF** : 5
- χ^2/**NDOF** : 1.07817

MINERvA_CCDIS_XSec_1Dx_ratio_Pb208_CH

dσ/dx (cm^2/nucleon)

MINERvA_CCDIS_XSec_1Dx_ratio_Pb208_CH

NUISANCE

NUISANCE (FINE)

Reconstructed Bjorken x

MINERvA_CCDIS_XSec_1Dx_ratio_Pb208_CH_settings

- **name** : MINERvA_CCDIS_XSec_1Dx_ratio_Pb208_CH
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.Pb.2500000.7.prepared.
- **type** : DEFAULT
- **description** : MINERvA_CCDIS_XSec_1Dx_ratio sample.
- **xtitle** : Reconstructed Bjorken x
- **ytitle** : dσ/dx (cm^2/nucleon)
- **default_types** : FIX/DIAG,FULL/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 5
- **enu_max** : 50
- **title** : MINERvA_CCDIS_XSec_1Dx_ratio
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCDIS_XSec_1Dx_ratio_Pb208_CH
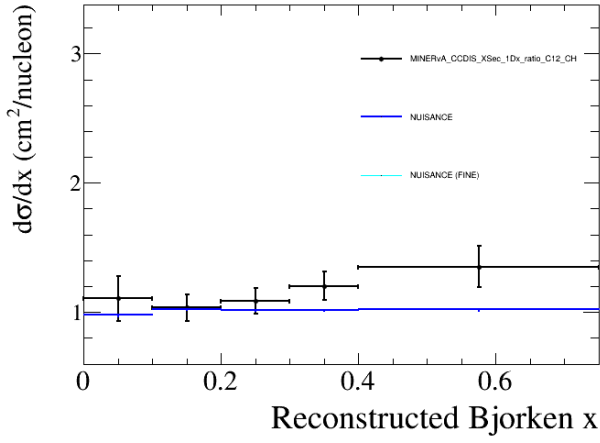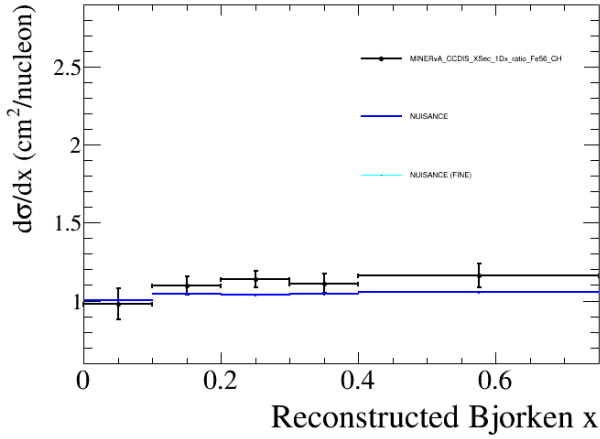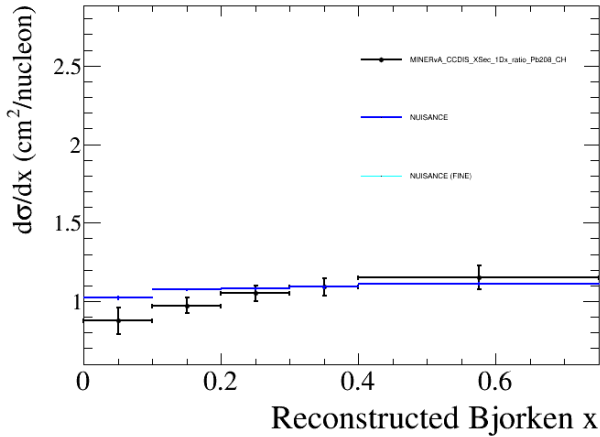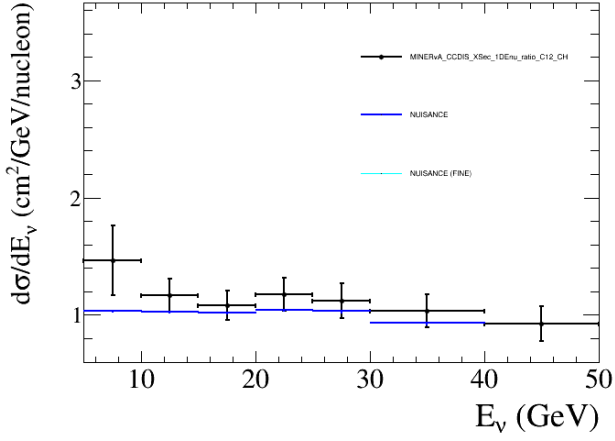- χ^2 : 7.2819
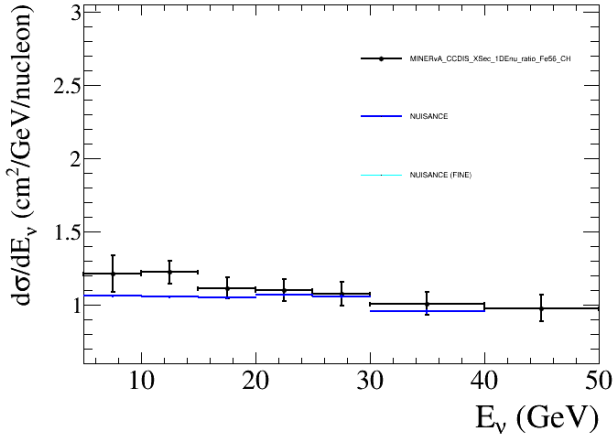- **NDOF** : 5
- χ^2/**NDOF** : 1.45638

MINERvA_CCDIS_XSec_1DEnu_ratio_C12_CH

MINERvA_CCDIS_XSec_1DEnu_ratio_C12_CH_settings

- **name** : MINERvA_CCDIS_XSec_1DEnu_ratio_C12_CH
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.C.2500000.5.prepared.r
- **type** : DEFAULT
- **description** : MINERvA_CCDIS_XSec_1DEnu_ratio sample.
- **xtitle** : E_ν (GeV)
- **ytitle** : $d\sigma/dE_\nu$ (cm^2/GeV/nucleon)
- **default_types** : FIX/DIAG,FULL/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 5
- **enu_max** : 50
- **title** : MINERvA_CCDIS_XSec_1DEnu_ratio
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCDIS_XSec_1DEnu_ratio_C12_CH
- χ^2 : 44.9596
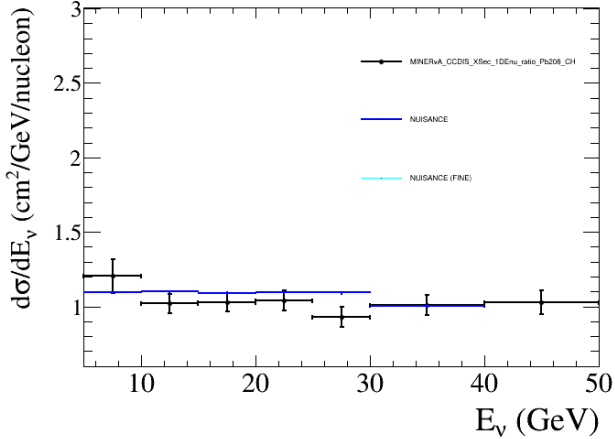- **NDOF** : 7
- χ^2/**NDOF** : 6.4228

MINERvA_CCDIS_XSec_1DEnu_ratio_Fe56_CH

MINERvA_CCDIS_XSec_1DEnu_ratio_Fe56_CH_settings

- **name** : MINERvA_CCDIS_XSec_1DEnu_ratio_Fe56_CH
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.Fe.2500000.6.prepared.
- **type** : DEFAULT
- **description** : MINERvA_CCDIS_XSec_1DEnu_ratio sample.
- **xtitle** : E_ν (GeV)
- **ytitle** : $d\sigma/dE_\nu$ (cm^2/GeV/nucleon)
- **default_types** : FIX/DIAG,FULL/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 5
- **enu_max** : 50
- **title** : MINERvA_CCDIS_XSec_1DEnu_ratio
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCDIS_XSec_1DEnu_ratio_Fe56_CH
- χ^2 : 150.301
- **NDOF** : 7
- χ^2/**NDOF** : 21.4716

MINERvA_CCDIS_XSec_1DEnu_ratio_Pb208_CH

MINERvA_CCDIS_XSec_1DEnu_ratio_Pb208_CH_settings

- **name** : MINERvA_CCDIS_XSec_1DEnu_ratio_Pb208_CH
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_numu.Pb.2500000.7.prepared.
- **type** : DEFAULT
- **description** : MINERvA_CCDIS_XSec_1DEnu_ratio sample.
- **xtitle** : E_ν (GeV)
- **ytitle** : $d\sigma/dE_\nu$ (cm^2/GeV/nucleon)
- **default_types** : FIX/DIAG,FULL/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 5
- **enu_max** : 50
- **title** : MINERvA_CCDIS_XSec_1DEnu_ratio
- **data** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/n
- **covar** : /data/stowell/NIWG/NUISANCEMC/minerva_tuning/sample_validations/minerva-validation-061117/builds/
- **originalname** : MINERvA_CCDIS_XSec_1DEnu_ratio_Pb208_CH
- χ^2 : 226.24
- **NDOF** : 7
- χ^2/**NDOF** : 32.3199