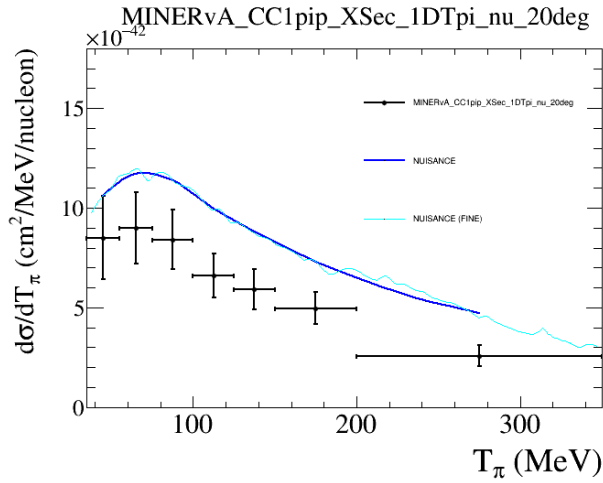


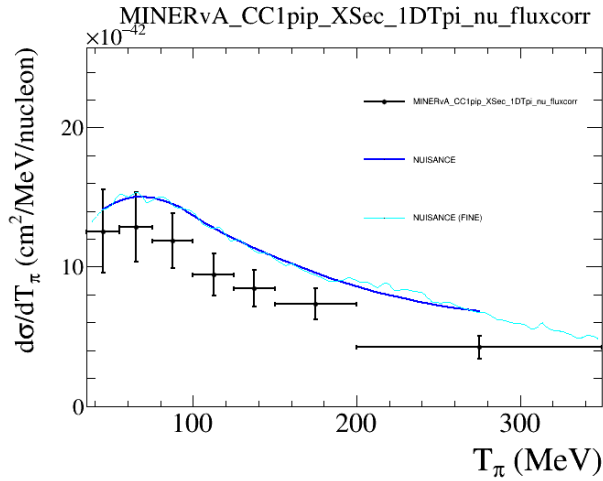
MINERvA_CC1pip_XSec_1DTpi_nu_settings

- **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** : $d\sigma/dT_\pi$ (cm²/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
- χ^2 : 22.0665
- **NDOF** : 7
- χ^2/NDOF : 3.15236



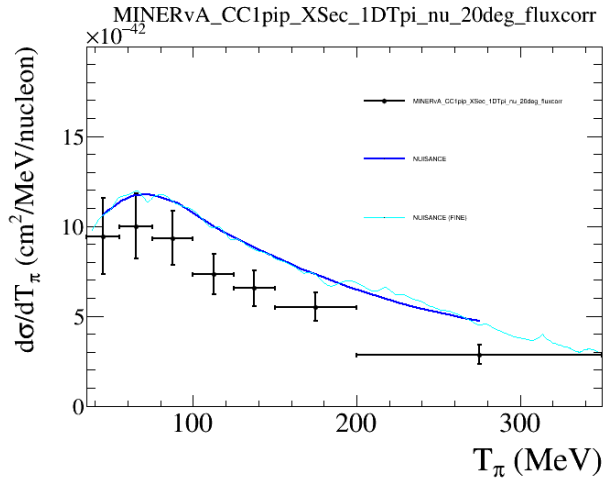
MINERvA_CC1pip_XSec_1DTpi_nu_20deg_settings

- **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** : $d\sigma/dT_\pi$ (cm²/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



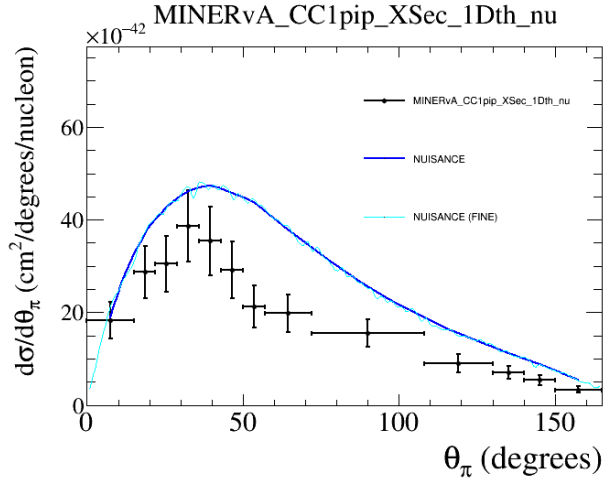
MINERvA_CC1pip_XSec_1DTpi_nu_fluxcorr_settings

- **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** : $d\sigma/dT_\pi$ (cm²/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



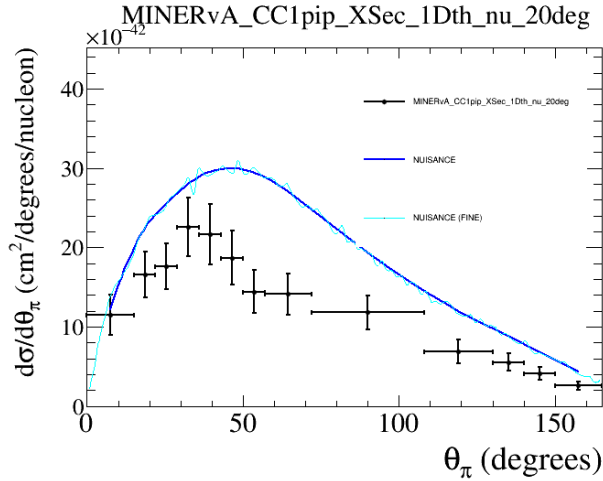
MINERvA_CC1pip_XSec_1DTpi_nu_20deg_fluxcorr_settings

- **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** : $d\sigma/dT_\pi$ (cm²/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



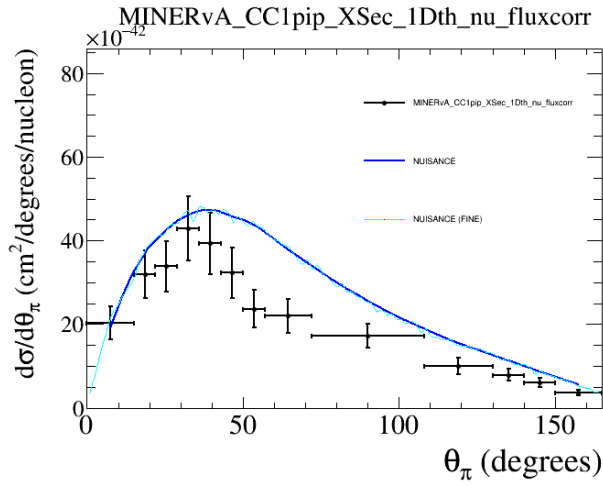
MINERvA_CC1pip_XSec_1Dth_nu_settings

- **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** : $d\sigma/d\theta_\pi$ (cm²/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



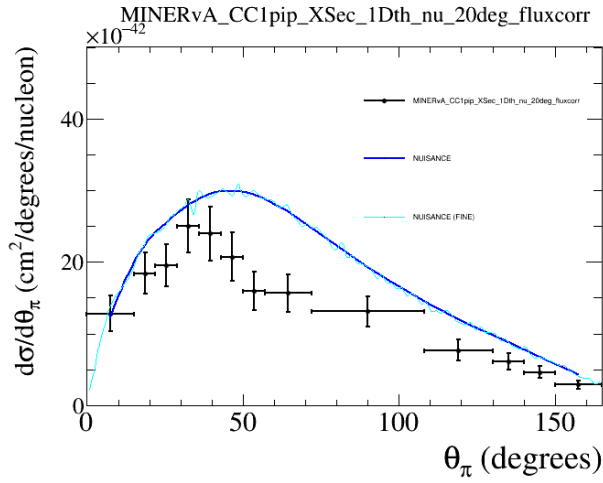
MINERvA_CC1pip_XSec_1Dth_nu_20deg_settings

- **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** : $d\sigma/d\theta_\pi$ (cm²/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



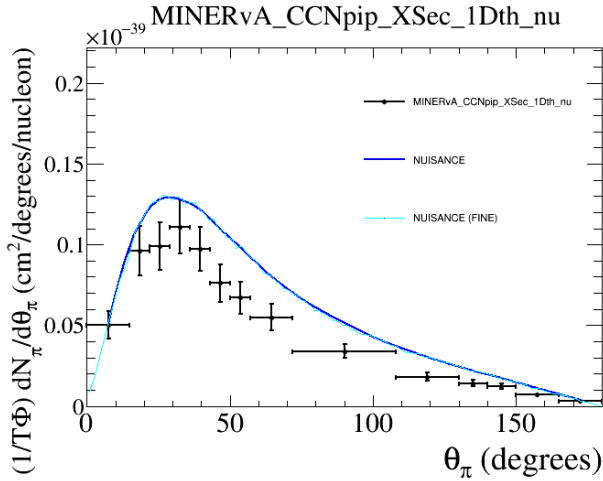
MINERvA_CC1pip_XSec_1Dth_nu_fluxcorr_settings

- **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 + nuubar
 ↳-> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : θ_π (degrees)
- **ytitle** : $d\sigma/d\theta_\pi$ (cm²/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



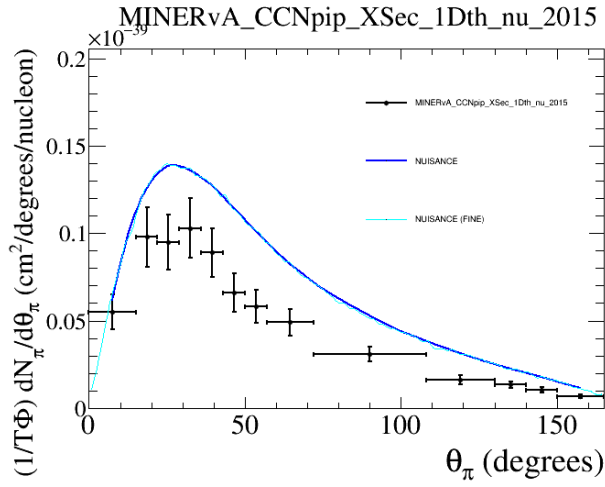
MINERvA_CC1pip_XSec_1Dth_nu_20deg_fluxcorr_settings

- **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 + nuubar
 ↳-> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : θ_π (degrees)
- **ytitle** : $d\sigma/d\theta_\pi$ (cm²/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



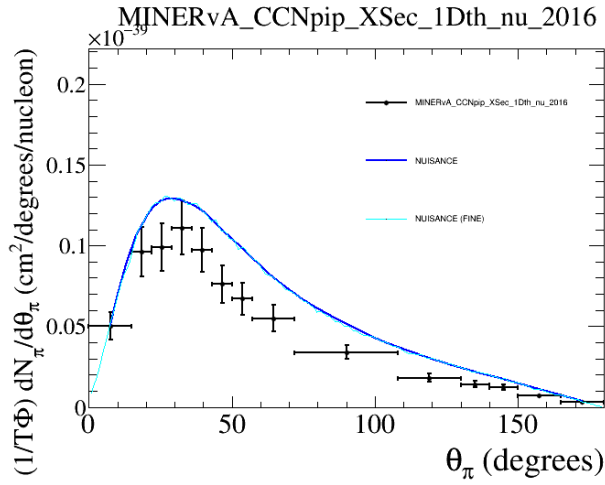
MINERvA_CCNpip_XSec_1Dth_nu_settings

- **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 + nuubar
 ↳-> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- **xtitle** : θ_π (degrees)
- **ytitle** : $(1/T\Phi) dN_\pi/d\theta_\pi$ (cm²/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



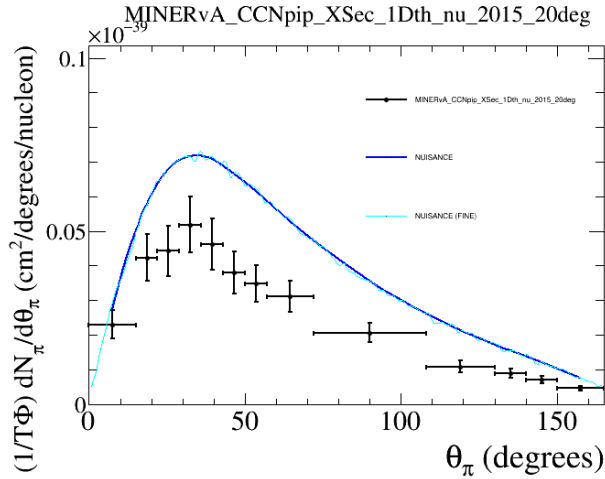
MINERvA_CCNpip_XSec_1Dth_nu_2015_settings

- **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/TΦ) $dN_{\pi}/d\theta_{\pi}$ (cm²/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



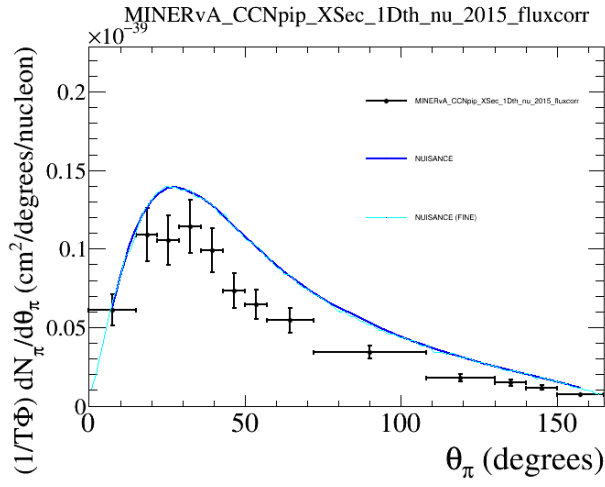
MINERvA_CCNpip_XSec_1Dth_nu_2016_settings

- **name** : MINERvA_CCNpip_XSec_1Dth_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_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/TΦ) $dN_{\pi}/d\theta_{\pi}$ (cm²/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_2016
- χ^2 : 56.9773
- **NDOF** : 14
- χ^2/NDOF : 4.06981



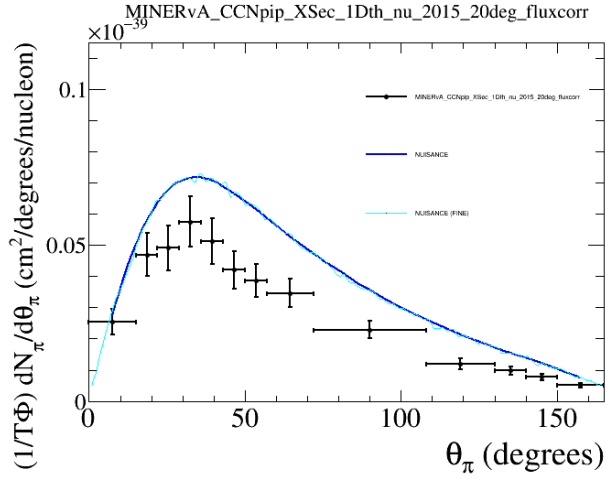
MINERvA_CCNpip_XSec_1Dth_nu_2015_20deg_settings

- **name** : MINERvA_CCNpip_XSec_1Dth_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_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/TΦ) $dN_{\pi}/d\theta_{\pi}$ (cm²/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_20deg
- χ^2 : 85.1578
- **NDOF** : 13
- χ^2/NDOF : 6.5506



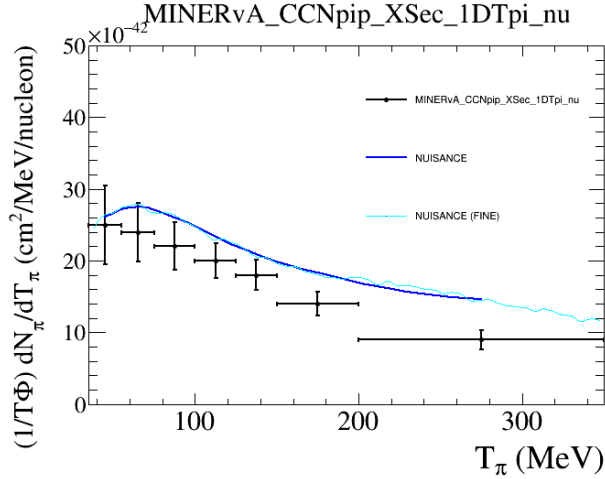
MINERvA_CCNpip_XSec_1Dth_nu_2015_fluxcorr_settings

- **name** : MINERvA_CCNpip_XSec_1Dth_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_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** : $(1/T\Phi) \frac{dN_{\pi}}{d\theta_{\pi}} \text{ (cm}^2/\text{degrees/nucleon)}$
- **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_fluxcorr
- χ^2 : 72.6073
- **NDOF** : 13
- χ^2/NDOF : 5.58517



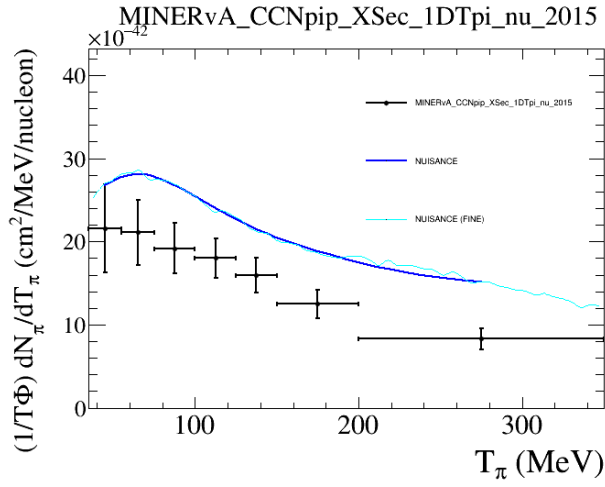
MINERvA_CCNpip_XSec_1Dth_nu_2015_20deg_fluxcorr_settings

- **name** : MINERvA_CCNpip_XSec_1Dth_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_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** : $(1/T\Phi) \frac{dN_{\pi}}{d\theta_{\pi}} \text{ (cm}^2/\text{degrees/nucleon)}$
- **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_20deg_fluxcorr
- χ^2 : 75.422
- **NDOF** : 13
- χ^2/NDOF : 5.80169



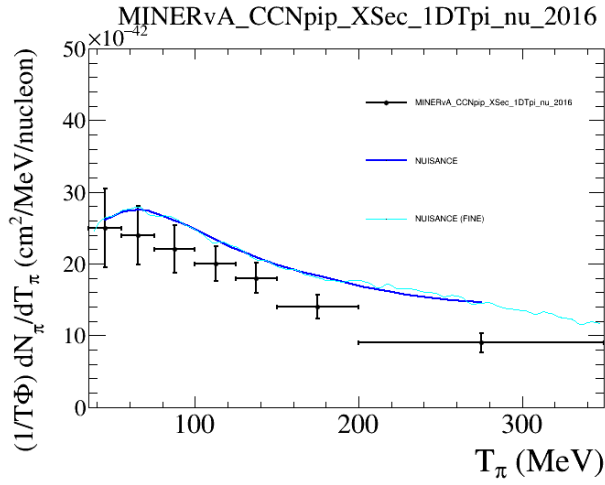
MINERvA_CCNpip_XSec_1DTpi_nu_settings

- **name** : MINERvA_CCNpip_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_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** : $(1/T\Phi) \frac{dN_{\pi}}{dT_{\pi}} \text{ (cm}^2/\text{MeV/nucleon)}$
- **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
- χ^2 : 25.081
- **NDOF** : 7
- χ^2/NDOF : 3.583



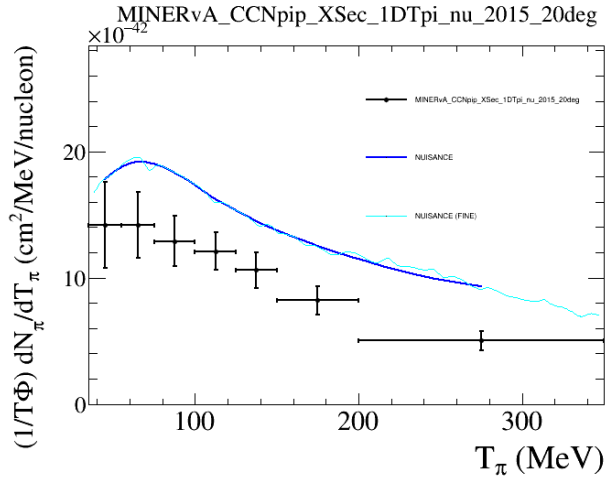
MINERvA_CCNpip_XSec_1DTpi_nu_2015_settings

- **name** : MINERvA_CCNpip_XSec_1DTpi_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_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** : $T_{\pi} \text{ (MeV)}$
- **ytitle** : $(1/T\Phi) dN_{\pi}/dT_{\pi} \text{ (cm}^2/\text{MeV/nucleon)}$
- **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
- χ^2 : 35.4956
- **NDOF** : 7
- χ^2/NDOF : 5.07079



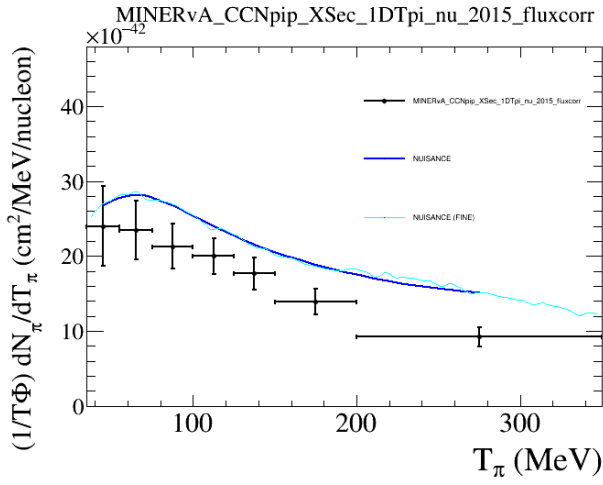
MINERvA_CCNpip_XSec_1DTpi_nu_2016_settings

- **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** : $T_{\pi} \text{ (MeV)}$
- **ytitle** : $(1/T\Phi) dN_{\pi}/dT_{\pi} \text{ (cm}^2/\text{MeV/nucleon)}$
- **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



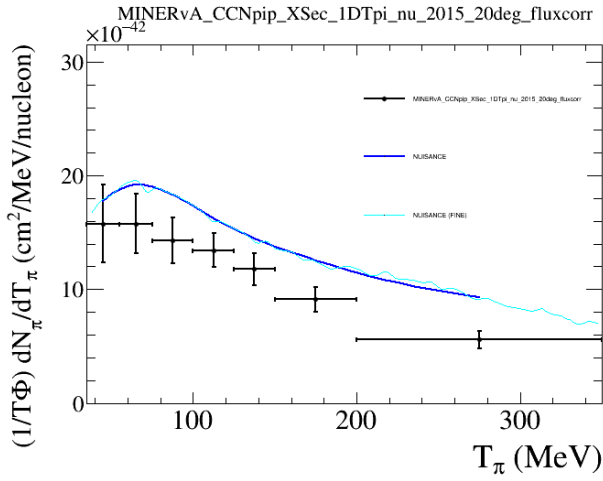
MINERvA_CCNpip_XSec_1DTpi_nu_2015_20deg_settings

- **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** : $T_{\pi} \text{ (MeV)}$
- **ytitle** : $(1/T\Phi) dN_{\pi}/dT_{\pi} \text{ (cm}^2/\text{MeV/nucleon)}$
- **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



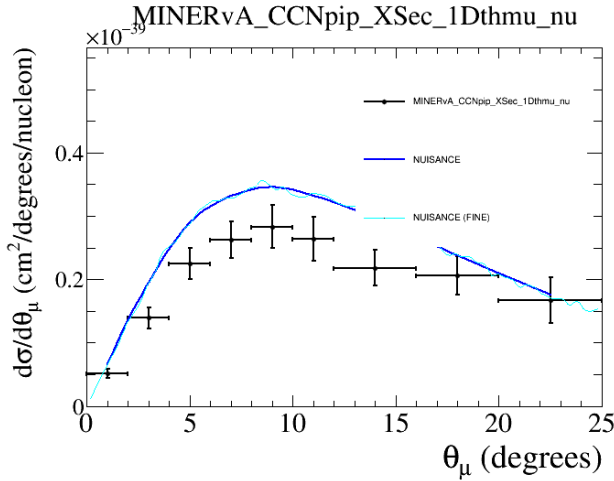
MINERvA_CCNpip_XSec_1DTpi_nu_2015_fluxcorr_settings

- **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** : $(1/T\Phi) dN_\pi/dT_\pi$ (cm²/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
- $\chi^2/NDOF$: 4.48442



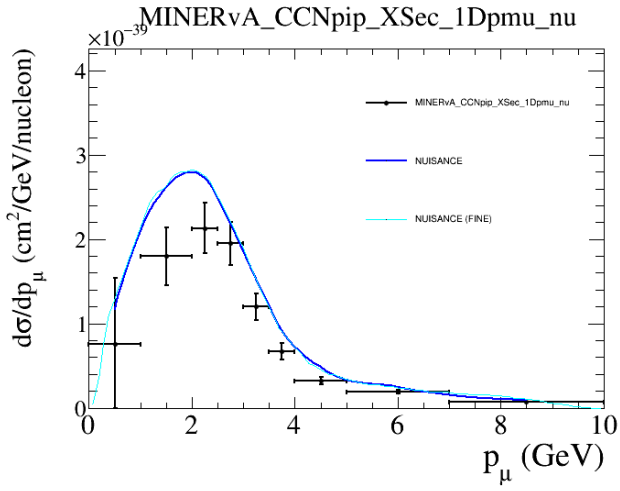
MINERvA_CCNpip_XSec_1DTpi_nu_2015_20deg_fluxcorr_settings

- **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** : $(1/T\Phi) dN_\pi/dT_\pi$ (cm²/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
- $\chi^2/NDOF$: 5.18101



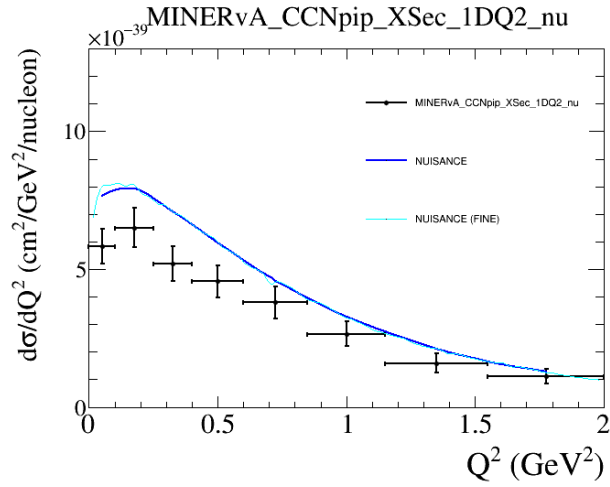
MINERvA_CCNpip_XSec_1Dthmu_nu_settings

- **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** : $d\sigma/d\theta_\mu$ (cm²/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/n
- **originalname** : MINERvA_CCNpip_XSec_1Dthmu_nu
- χ^2 : 20.3228
- **NDOF** : 9
- $\chi^2/NDOF$: 2.25809



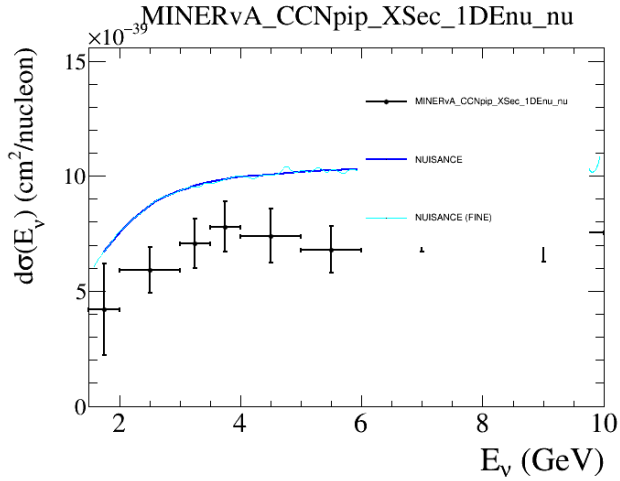
MINERvA_CCNpip_XSec_1Dpmu_nu_settings

- **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** : $d\sigma/dp_\mu$ (cm²/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



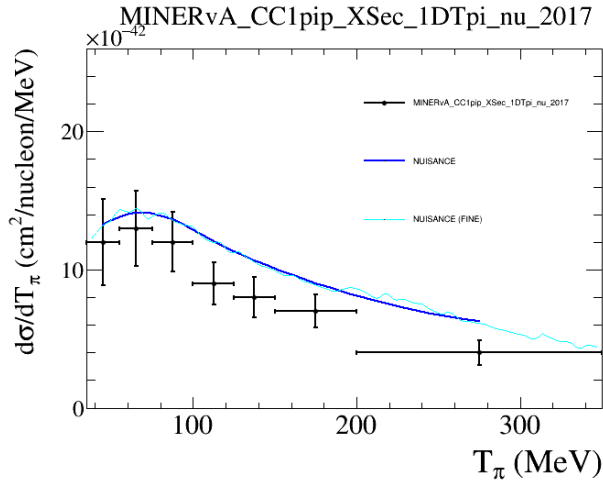
MINERvA_CCNpip_XSec_1DQ2_nu_settings

- **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 (GeV²)
- **ytitle** : $d\sigma/dQ^2$ (cm²/GeV²/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



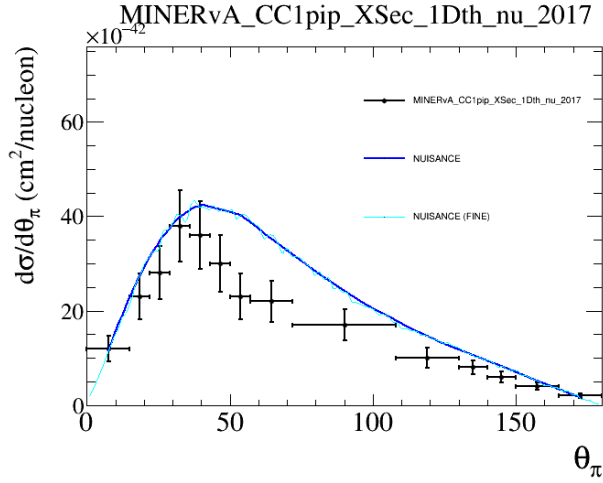
MINERvA_CCNpip_XSec_1DEnu_nu_settings

- **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** : $d\sigma(E_\nu)$ (cm²/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



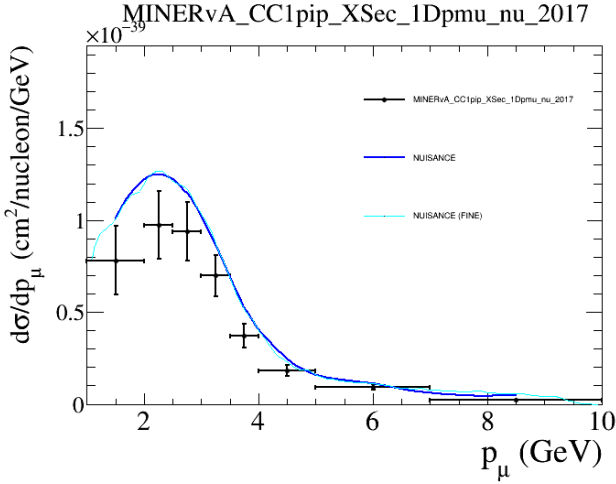
MINERvA_CC1pip_XSec_1DTpi_nu_2017_settings

- **name** : MINERvA_CC1pip_XSec_1DTpi_nu_2017
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_nu.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 nu_mu 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/n
- **title** : CC1π Updated
- **xtitle** : T_π (MeV)
- **ytitle** : $d\sigma/dT_\pi$ (cm²/nucleon/MeV)
- **originalname** : MINERvA_CC1pip_XSec_1DTpi_nu_2017
- χ^2 : 13.5007
- **NDOF** : 7
- χ^2/NDOF : 1.92868



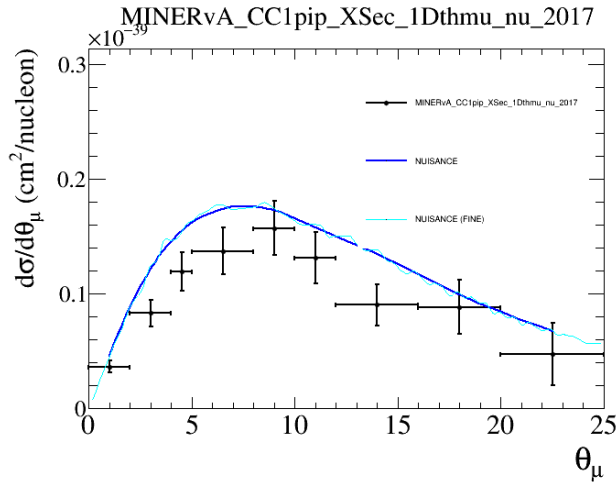
MINERvA_CC1pip_XSec_1Dth_nu_2017_settings

- **name** : MINERvA_CC1pip_XSec_1Dth_nu_2017
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_nu.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 nu_mu 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/n
- **title** : CC1π Updated
- **xtitle** : θ_π
- **ytitle** : $d\sigma/d\theta_\pi$ (cm²/nucleon)
- **originalname** : MINERvA_CC1pip_XSec_1Dth_nu_2017
- χ^2 : 82.9066
- **NDOF** : 14
- χ^2/NDOF : 5.9219



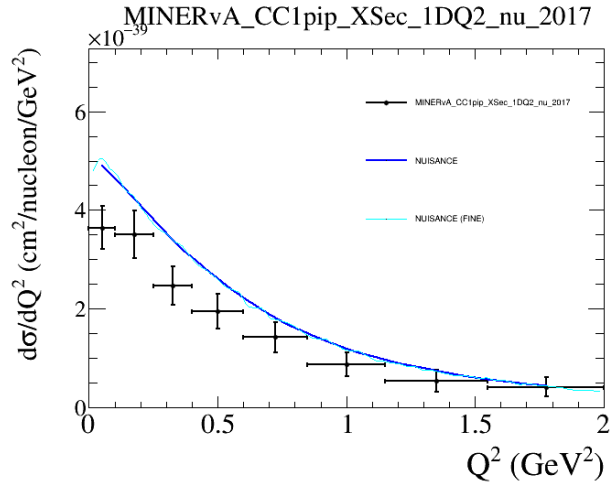
MINERvA_CC1pip_XSec_1Dpmu_nu_2017_settings

- **name** : MINERvA_CC1pip_XSec_1Dpmu_nu_2017
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_nu.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 nu_mu 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/n
- **title** : CC1π Updated
- **xtitle** : p_μ (GeV)
- **ytitle** : $d\sigma/dp_\mu$ (cm²/nucleon/GeV)
- **originalname** : MINERvA_CC1pip_XSec_1Dpmu_nu_2017
- χ^2 : 20.458
- **NDOF** : 8
- χ^2/NDOF : 2.55725



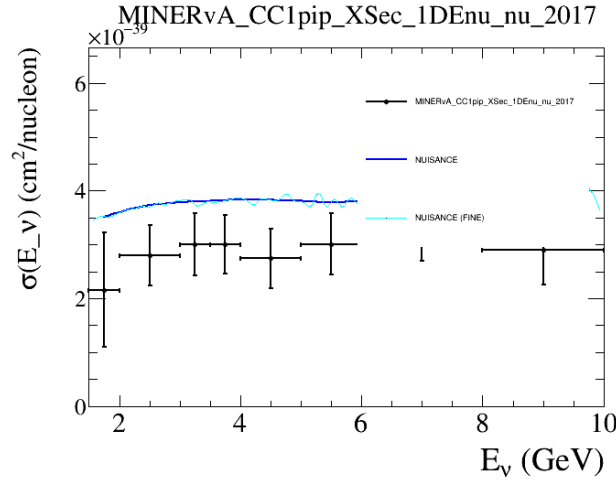
MINERvA_CC1pip_XSec_1Dthmu_nu_2017_settings

- **name** : MINERvA_CC1pip_XSec_1Dthmu_nu_2017
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_fhc_nu.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 nu_mu 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** : θ_μ
- **ytitle** : $d\sigma/d\theta_\mu$ (cm²/nucleon)
- **originalname** : MINERvA_CC1pip_XSec_1Dthmu_nu_2017
- χ^2 : 32.2319
- **NDOF** : 9
- χ^2/NDOF : 3.58132



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_nu.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 nu_mu 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 (GeV²)
- **ytitle** : $d\sigma/dQ^2$ (cm²/nucleon/GeV²)
- **originalname** : MINERvA_CC1pip_XSec_1DQ2_nu_2017
- χ^2 : 15.6999
- **NDOF** : 8
- χ^2/NDOF : 1.96249



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_nu.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 nu_mu 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** : $\sigma(E_\nu)$ (cm²/nucleon)
- **originalname** : MINERvA_CC1pip_XSec_1DEnu_nu_2017
- χ^2 : 7.03107
- **NDOF** : 8
- χ^2/NDOF : 0.878883