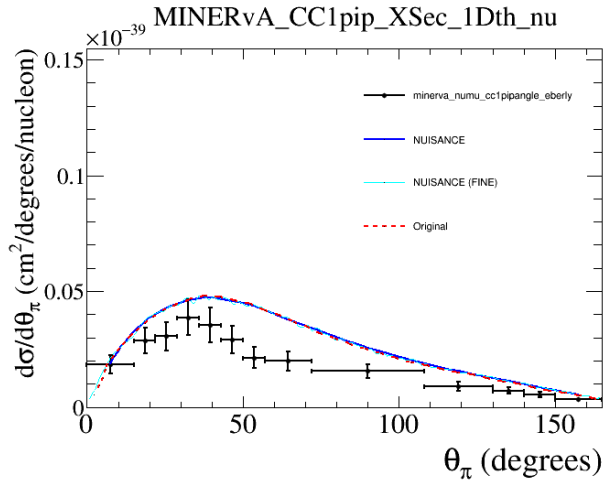


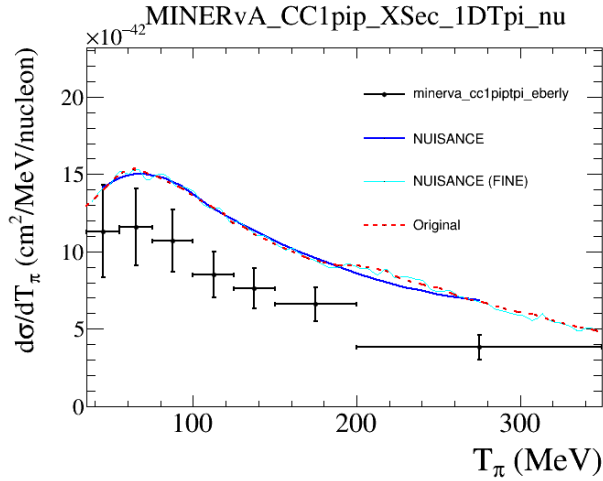
MINERvA_CC1pip_XSec_1Dth_nu_settings

- **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



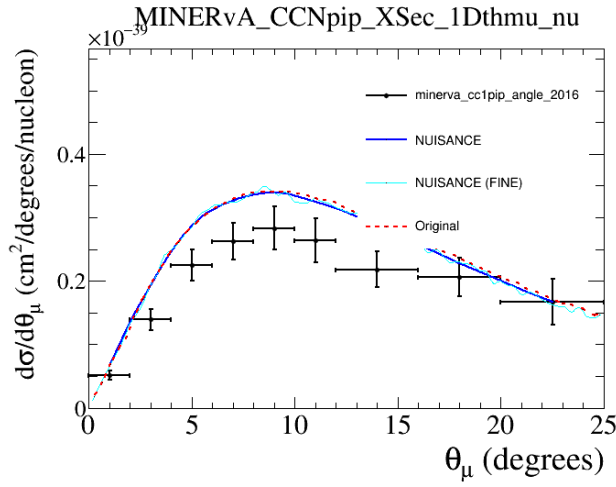
MINERvA_CC1pip_XSec_1Dth_nu_settings

- **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



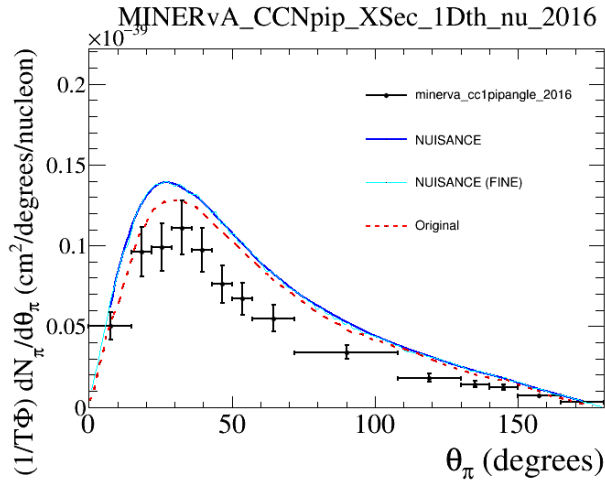
MINERvA_CC1pip_XSec_1DTpi_nu_settings

- **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



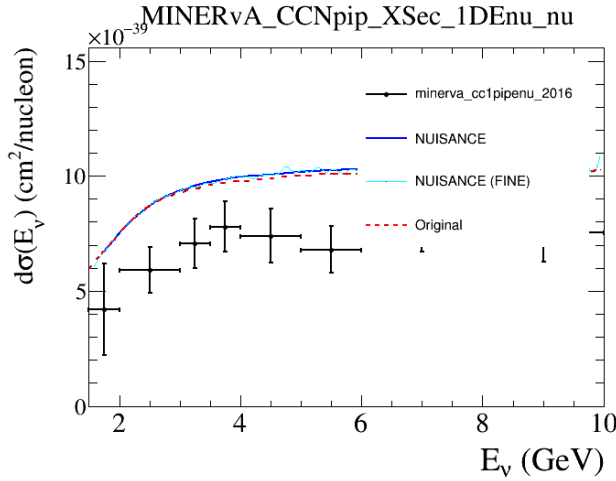
MINERvA_CCNpip_XSec_1Dthmu_nu_settings

- **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/
- **originalname** : MINERvA_CCNpip_XSec_1Dthmu_nu
- χ^2 : 20.2469
- **NDOF** : 9
- χ^2/NDOF : 2.24966



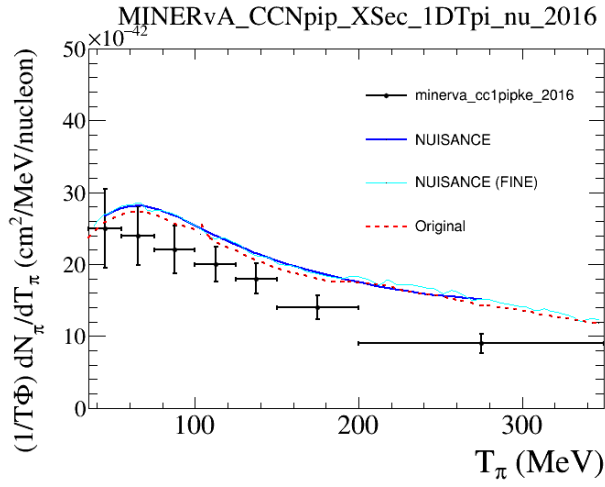
MINERvA_CCNpip_XSec_1Dth_nu_2016_settings

- **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** : $(1/T\Phi) dN_\pi/d\theta_\pi$ (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_2016
- χ^2 : 52.9607
- **NDOF** : 14
- χ^2/NDOF : 3.7829



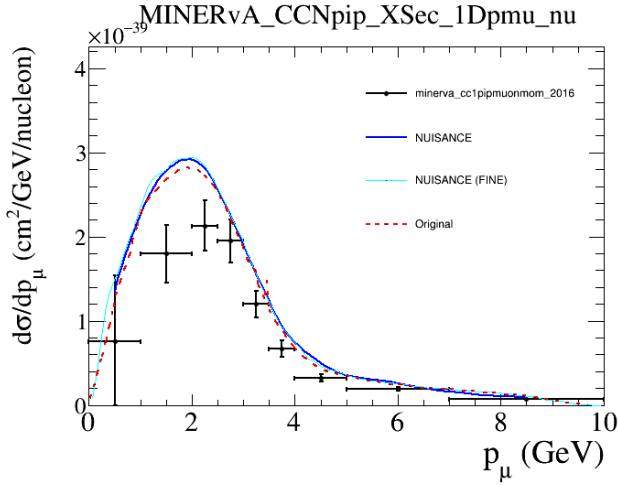
MINERvA_CCNpip_XSec_1DEnu_nu_settings

- **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



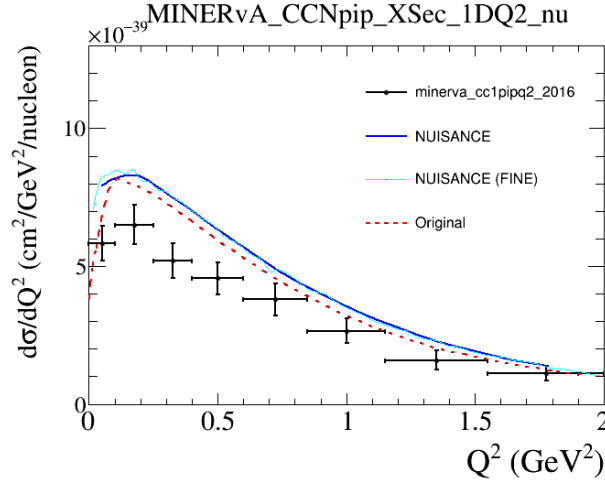
MINERvA_CCNpip_XSec_1DTpi_nu_2016_settings

- 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** :
 l-> MINERvA_CCNpip_XSec_1DTpi_nu sample.
 l-> Target: CH
 l-> Flux: MINERvA Forward Horn Current nue + nuubar
 l-> 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 : 29.5758
- NDOF** : 7
- χ^2/NDOF : 4.22511



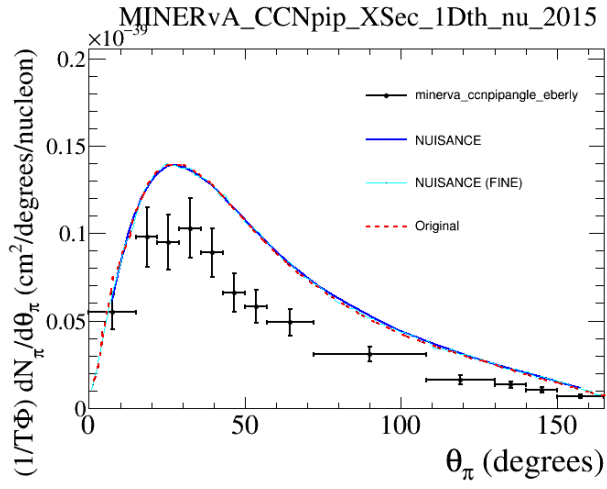
MINERvA_CCNpip_XSec_1Dpmu_nu_settings

- 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** :
 l-> MINERvA_CCNpip_XSec_1Dpmu_nu sample.
 l-> Target: CH
 l-> Flux: MINERvA Forward Horn Current nue + nuubar
 l-> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- xtitle** : $p_{\mu} \text{ (GeV)}$
- ytitle** : $d\sigma/dp_{\mu} \text{ (cm}^2/\text{GeV/nucleon)}$
- 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 : 45.0958
- NDOF** : 9
- χ^2/NDOF : 5.01064



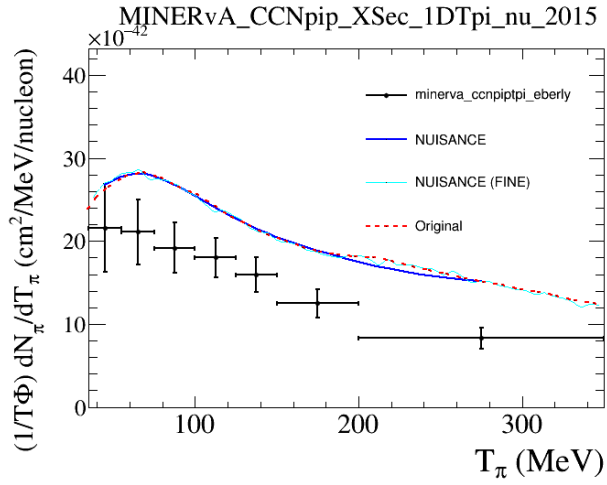
MINERvA_CCNpip_XSec_1DQ2_nu_settings

- 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** :
 l-> MINERvA_CCNpip_XSec_1DQ2_nu sample.
 l-> Target: CH
 l-> Flux: MINERvA Forward Horn Current nue + nuubar
 l-> Signal: Any event with 1 electron, any nucleons, and no other FS particles
- xtitle** : $Q^2 \text{ (GeV}^2\text{)}$
- ytitle** : $d\sigma/dQ^2 \text{ (cm}^2/\text{GeV}^2/\text{nucleon)}$
- 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 : 19.4362
- NDOF** : 8
- χ^2/NDOF : 2.42953



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** : $(1/T\Phi) \frac{dN_{\pi}}{d\theta_{\pi}} \text{ (cm}^2/\text{degrees/nucleon)}$
- **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
- χ^2 : 80.6474
- **NDOF** : 13
- χ^2/NDOF : 6.20364



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_{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_2015
- χ^2 : 35.4956
- **NDOF** : 7
- χ^2/NDOF : 5.07079