MINERvA_CCQE_XSec_1DQ2_nu

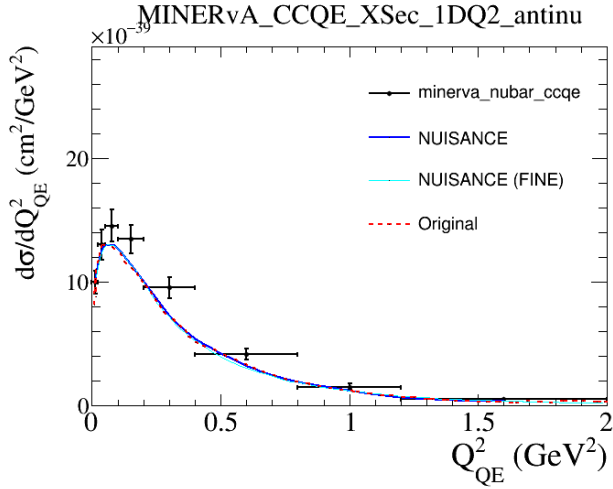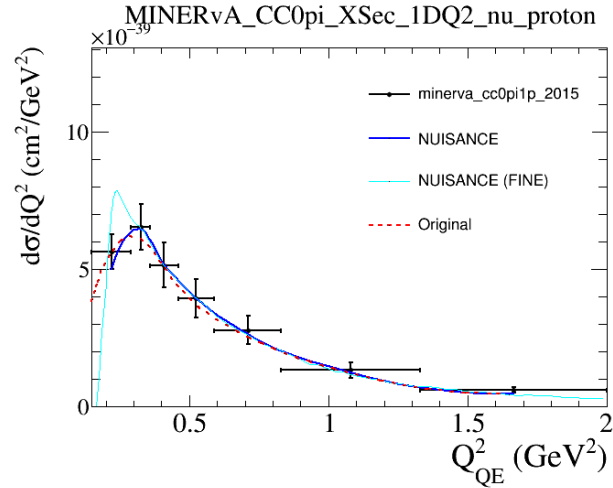MINERvA_CCQE_XSec_1DQ2_nu_settings

- **name** : MINERvA_CCQE_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_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/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CCQE
- **covar** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CCQ
- **originalname** : MINERvA_CCQE_XSec_1DQ2_nu
- **χ²** : 19.3218
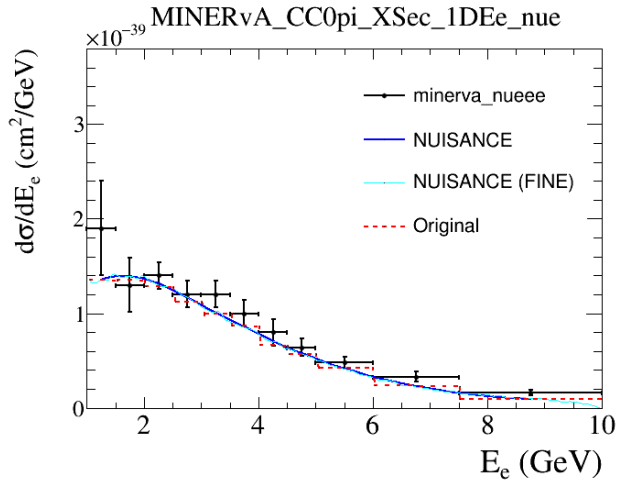- **NDOF** : 8
- **χ²/NDOF** : 2.41522

MINERvA_CCQE_XSec_1DQ2_antinu

MINERvA_CCQE_XSec_1DQ2_antinu_settings

- **name** : MINERvA_CCQE_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_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/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CCQE
- **covar** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CCQ
- **originalname** : MINERvA_CCQE_XSec_1DQ2_antinu
- **χ²** : 19.9113
- **NDOF** : 8
- **χ²/NDOF** : 2.48891

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/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CCQE
- **covar** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CCQ
- **originalname** : MINERvA_CC0pi_XSec_1DQ2_nu_proton
- **χ²** : 7.63844
- **NDOF** : 7
- **χ²/NDOF** : 1.09121

MINERvA_CC0pi_XSec_1DEe_nue

Legend: minerva_nueee, NUISANCE, NUISANCE (FINE), Original

y-axis: $d\sigma/dE_e$ (cm^2/GeV) ×10^{-39}
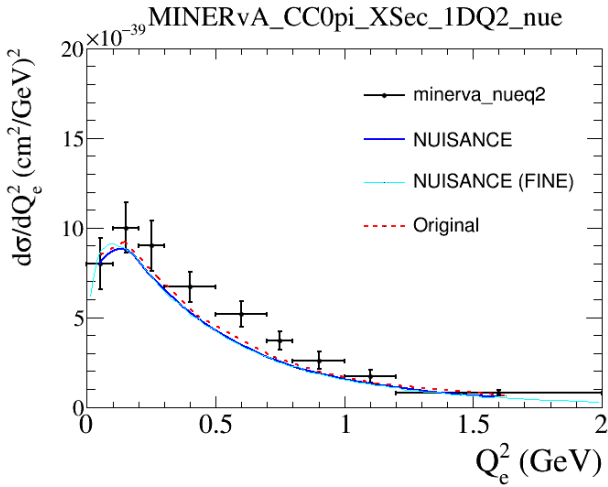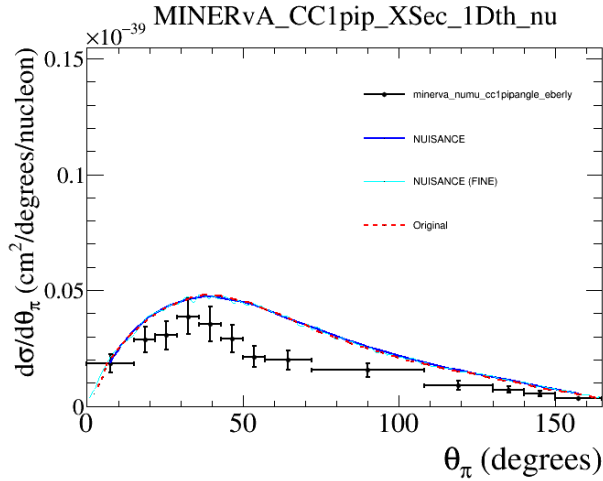x-axis: E_e (GeV)

MINERvA_CC0pi_XSec_1DEe_nue_settings

- **name** : MINERvA_CC0pi_XSec_1DEe_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 nue Ee 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_e (GeV)
- **ytitle** : $d\sigma/dE_e$ (cm^2/GeV)
- **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/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CC0pi
- **covar** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CC0pi
- **originalname** : MINERvA_CC0pi_XSec_1DEe_nue
- **χ^2** : 0.95264
- **NDOF** : 11
- **χ^2/NDOF** : 0.0866036

MINERvA_CC0pi_XSec_1DQ2_nue

Legend: minerva_nueq2, NUISANCE, NUISANCE (FINE), Original

y-axis: $d\sigma/dQ_e^2$ $(cm^2/GeV)^2$ ×10^{-39}
x-axis: Q_e^2 (GeV)

MINERvA_CC0pi_XSec_1DQ2_nue_settings

- **name** : MINERvA_CC0pi_XSec_1DQ2_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_1DQ2_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** : Q_e^2 (GeV)
- **ytitle** : $d\sigma/dQ_e^2$ $(cm^2/GeV)^2$
- **default_types** : FIX,FREE,SHAPE/DIAG,FULL/NORM/MASK
- **allowed_types** : FIX/FULL
- **enu_min** : 0
- **enu_max** : 10
- **title** : MINERvA_CC0pi_XSec_1DQ2_nue
- **data** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CC0pi
- **covar** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CC0pi
- **originalname** : MINERvA_CC0pi_XSec_1DQ2_nue
- **χ^2** : 0.99699
- **NDOF** : 9
- **χ^2/NDOF** : 0.110777

MINERvA_CC1pip_XSec_1Dth_nu

Legend: minerva_numu_cc1pipangle_eberly, NUISANCE, NUISANCE (FINE), Original

y-axis: $d\sigma/d\theta_\pi$ $(cm^2/degrees/nucleon)$ ×10^{-39}
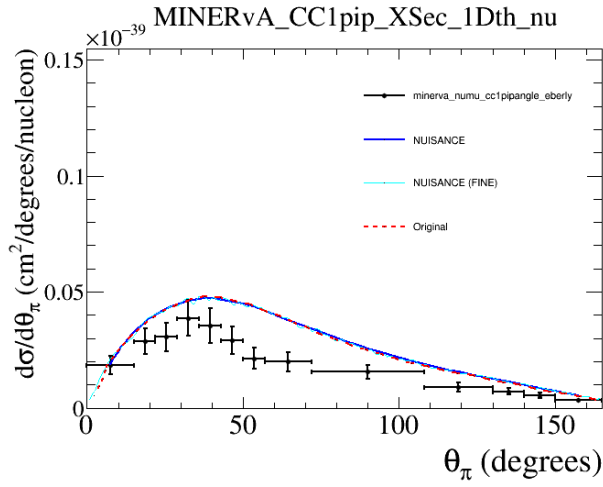x-axis: θ_π (degrees)

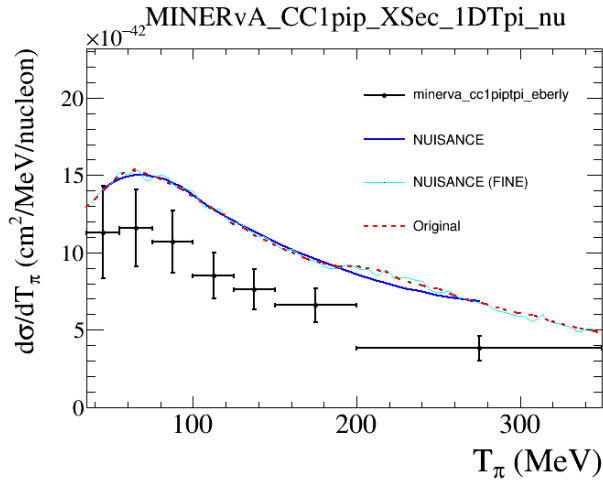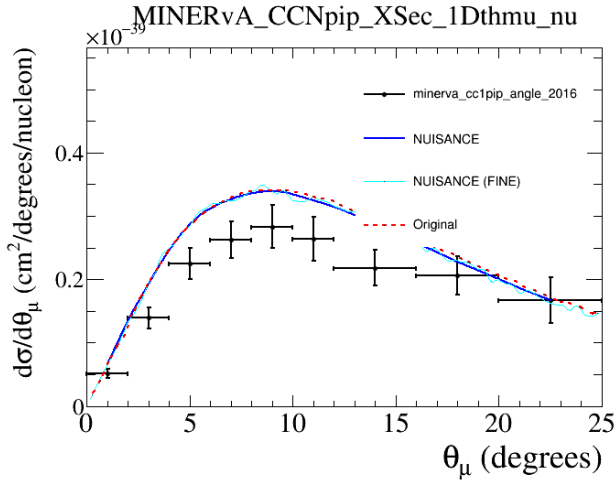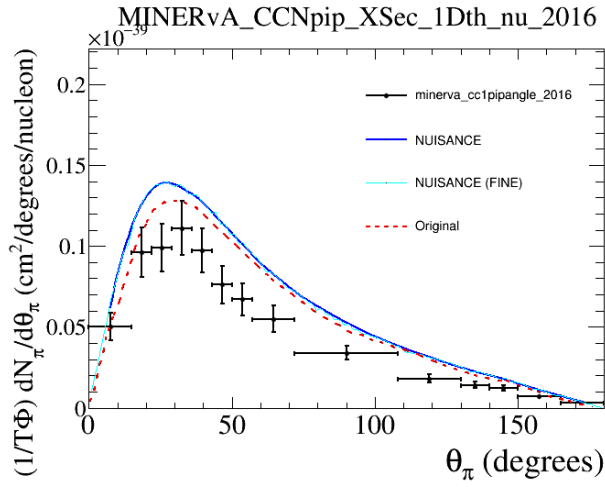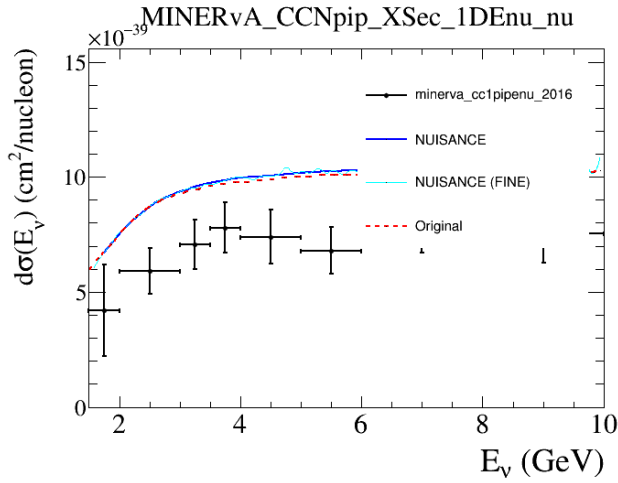**MINERvA_CC1pip_XSec_1Dth_nu_settings**

- **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/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data/MINERvA/CC1pip
- **covar** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data/MINERvA/CC1pip
- **originalname** : MINERvA_CC1pip_XSec_1Dth_nu
- **χ^2** : 104.614
- **NDOF** : 13
- **χ^2/NDOF** : 8.04719

MINERvA_CC1pip_XSec_1Dth_nu

MINERvA_CC1pip_XSec_1DTpi_nu

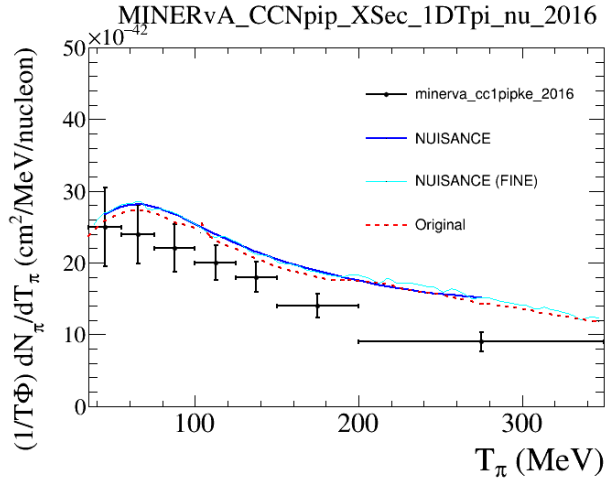## MINERvA_CCNpip_XSec_1Dthmu_nu

MINERvA_CCNpip_XSec_1Dth_nu_2016

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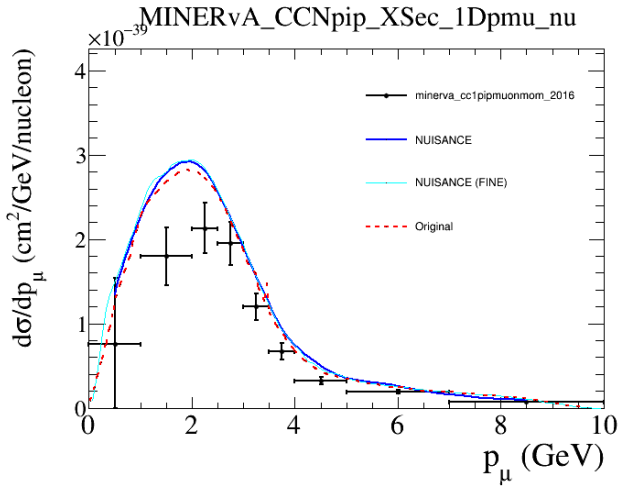- χ^2/NDOF : 3.7829

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** : $d\sigma(E_\nu)$ (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/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CCNp
- **covar** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CCN
- **originalname** : MINERvA_CCNpip_XSec_1DEnu_nu
- χ^2 : 19.1013
- **NDOF** : 8
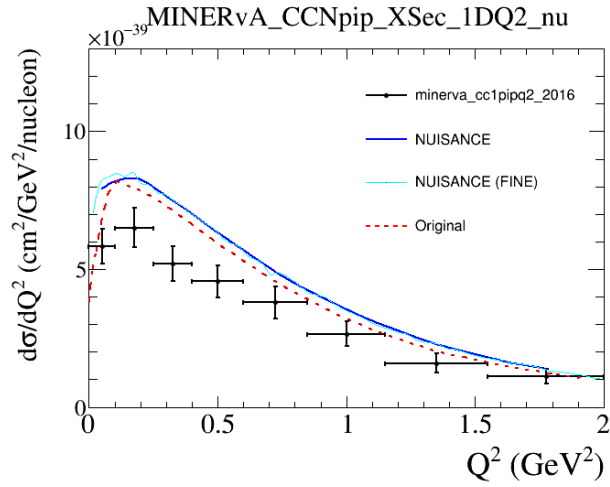- χ^2/NDOF : 2.38766

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** : $(1/T\Phi)\ dN_\pi/dT_\pi$ (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_2016
- χ^2 : 29.5758
- **NDOF** : 7
- χ^2/NDOF : 4.22511

MINERvA_CCNpip_XSec_1Dpmu_nu
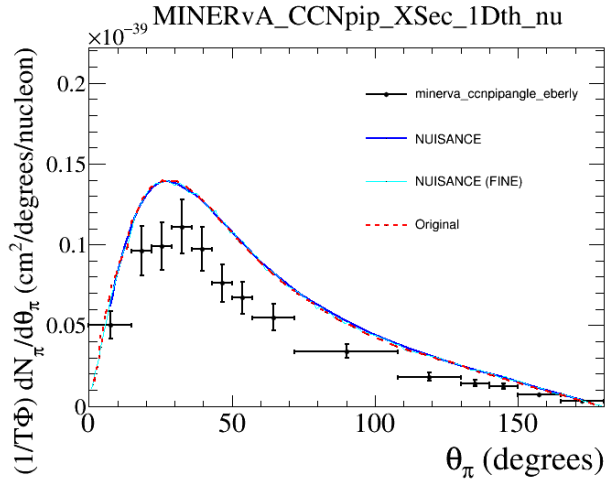
MINERvA_CCNpip_XSec_1Dpmu_nu_settings

- **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/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CCNp
- **covar** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CCN
- **originalname** : MINERvA_CCNpip_XSec_1Dpmu_nu
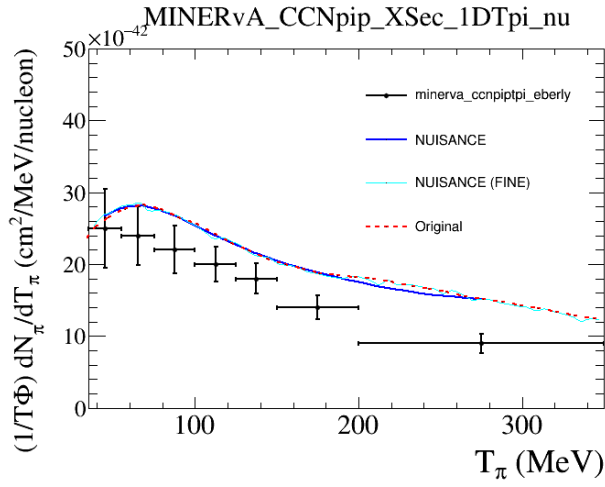- χ^2 : 45.0958
- **NDOF** : 9
- χ^2/**NDOF** : 5.01064

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** : $d\sigma/dQ^2$ (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/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CCNp
- **covar** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data//MINERvA/CCN
- **originalname** : MINERvA_CCNpip_XSec_1DQ2_nu
- χ^2 : 19.4362
- **NDOF** : 8
- χ^2/**NDOF** : 2.42953

MINERvA_CCNpip_XSec_1Dth_nu

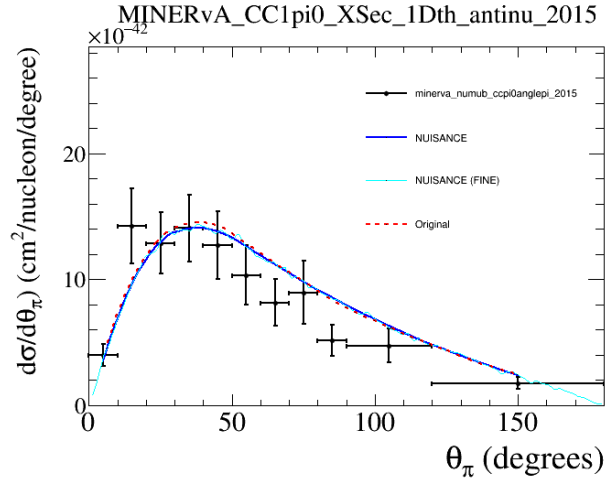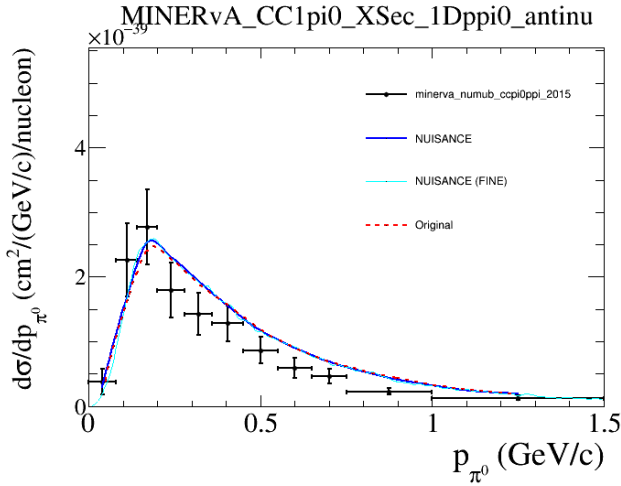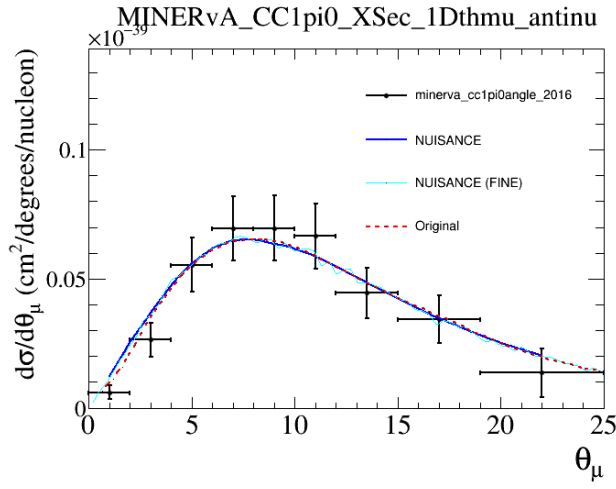MINERvA_CCNpip_XSec_1Dth_nu_settings

- **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 : 52.9607
- **NDOF** : 14
- χ^2/**NDOF** : 3.7829

MINERvA_CCNpip_XSec_1DTpi_nu

legend:
- minerva_ccnpiptpi_eberly
- NUISANCE
- NUISANCE (FINE)
- Original

y-axis: $(1/T\Phi)\, dN_\pi/dT_\pi$ $(cm^2/MeV/nucleon)$
x-axis: T_π (MeV)

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** : $(1/T\Phi)\, dN_\pi/dT_\pi$ $(cm^2/MeV/nucleon)$
- **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
- χ^2 : 29.5758
- **NDOF** : 7
- χ^2/**NDOF** : 4.22511

MINERvA_CC1pi0_XSec_1Dth_antinu_2015

legend:
- minerva_numub_ccpi0anglepi_2015
- NUISANCE
- NUISANCE (FINE)
- Original

y-axis: $d\sigma/d\theta_\pi$ $(cm^2/nucleon/degree)$
x-axis: θ_π (degrees)

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_1Dppi0_antinu

legend:
- minerva_numub_ccpi0ppi_2015
- NUISANCE
- NUISANCE (FINE)
- Original

y-axis: $d\sigma/dp_{\pi^0}$ $(cm^2/(GeV/c)/nucleon)$
x-axis: p_{π^0} (GeV/c)

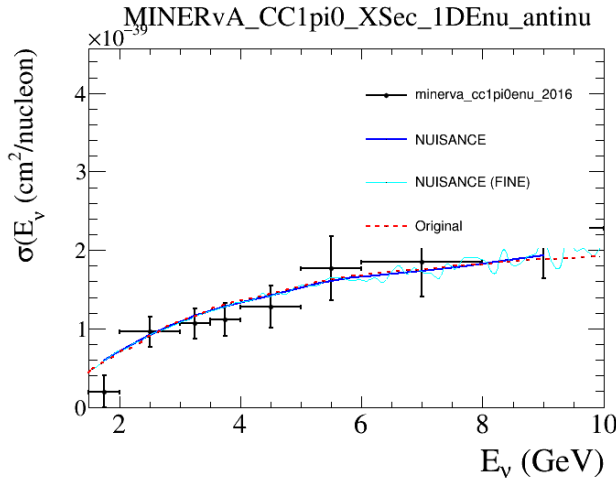### MINERvA_CC1pi0_XSec_1Dppi0_antinu_settings

- **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
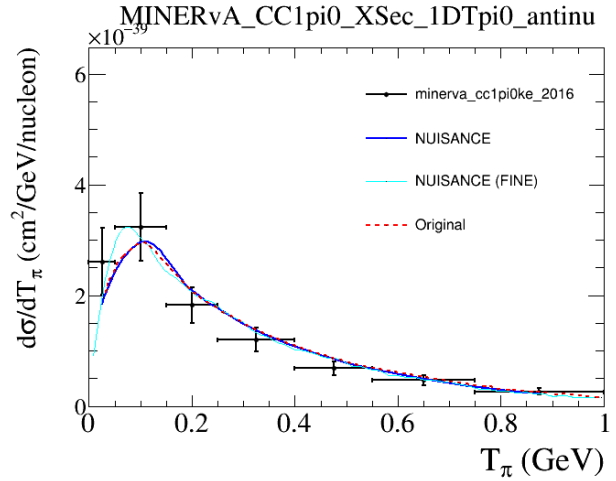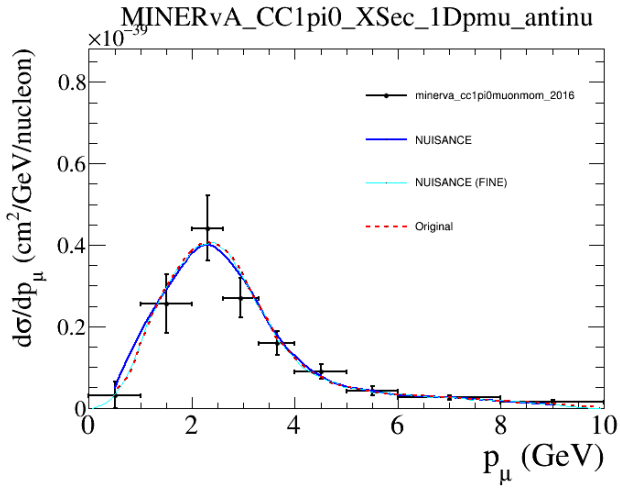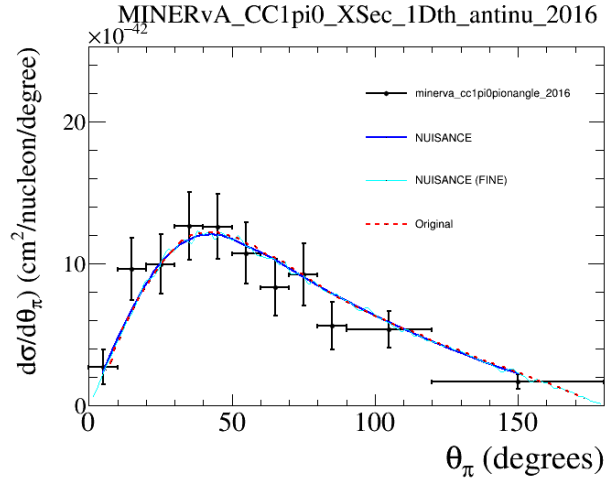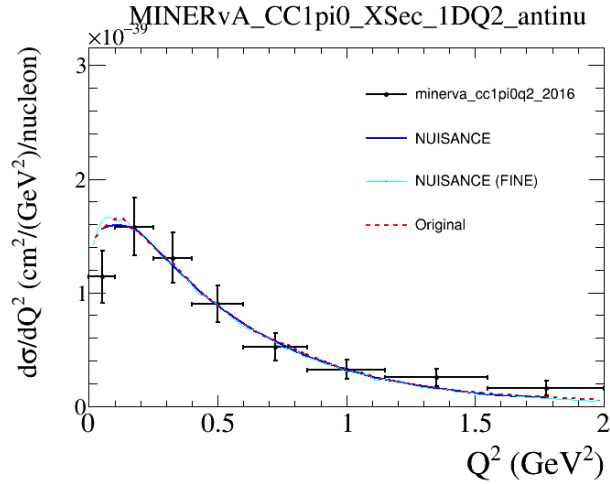- χ^2/**NDOF** : 3.73599

MINERvA_CC1pi0_XSec_1Dthmu_antinu

MINERvA_CC1pi0_XSec_1Dthmu_antinu_settings
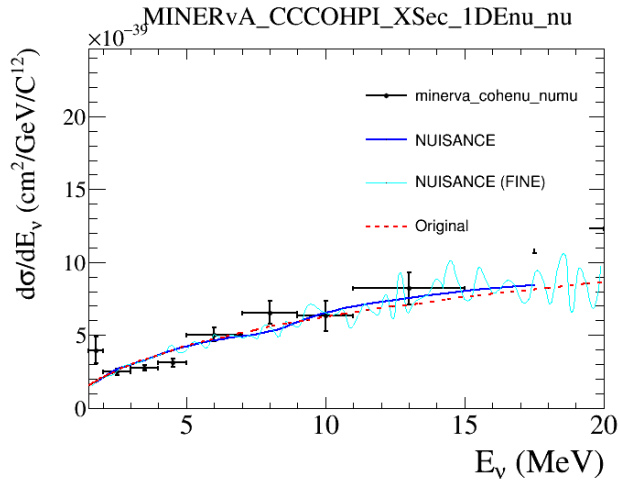
- **name** : MINERvA_CC1pi0_XSec_1Dthmu_antinu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pi0_XSec_1Dthmu_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current 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_1DEnu_antinu

MINERvA_CC1pi0_XSec_1DEnu_antinu_settings
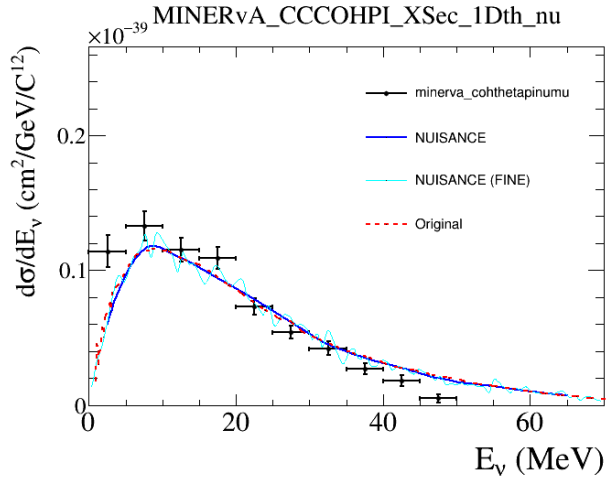
- **name** : MINERvA_CC1pi0_XSec_1DEnu_antinu
- **input** : GENIE:@GENIE_DIR/gntp.R-2_6_3.OfficialDefault.Default.MINERvA_rhc_numubar.CH.2500000.2.prepa
- **type** : DEFAULT
- **description** :
  |--> MINERvA_CC1pi0_XSec_1DEnu_antinu sample.
  |--> Target: CH
  |--> Flux: MINERvA Forward Horn Current 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_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_1Dpmu_antinu

MINERvA_CC1pi0_XSec_1Dth_antinu_2016

MINERvA_CC1pi0_XSec_1DQ2_antinu

MINERvA_CCCOHPI_XSec_1DEnu_nu
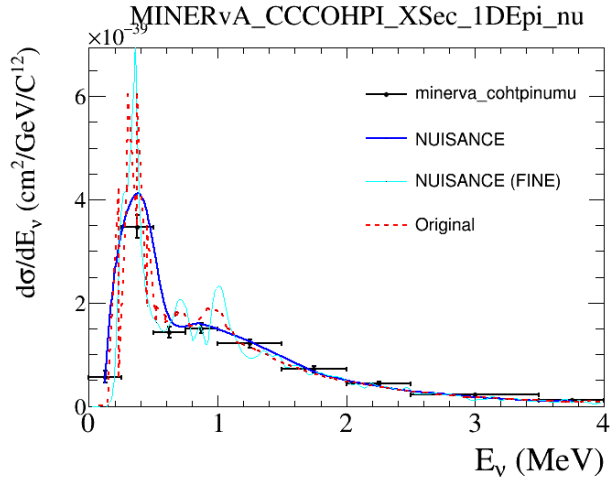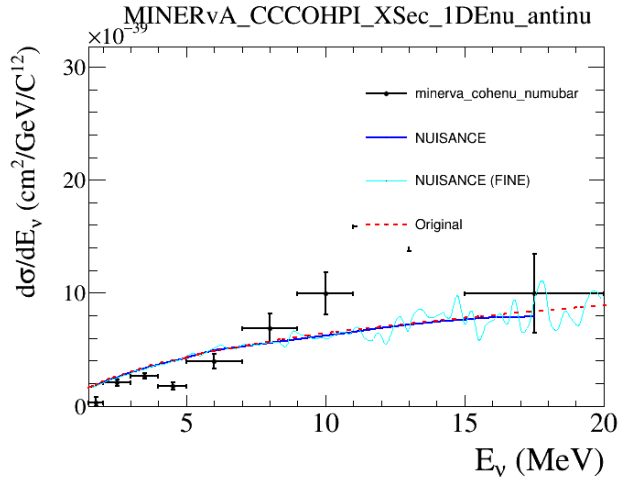
MINERvA_CCCOHPI_XSec_1DEnu_nu_settings

- **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 (MeV)
- **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/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data/MINERvA/CCcoh
- **covar** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data/MINERvA/CCco
- **originalname** : MINERvA_CCCOHPI_XSec_1DEnu_nu
- χ^2 : 0
- **NDOF** : 9
- χ^2/**NDOF** : 0

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** : E_ν (MeV)
- **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_1Dth_nu
- **data** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data/MINERvA/CCcoh
- **covar** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data/MINERvA/CCco
- **originalname** : MINERvA_CCCOHPI_XSec_1Dth_nu
- χ^2 : 0
- **NDOF** : 12
- χ^2/**NDOF** : 0

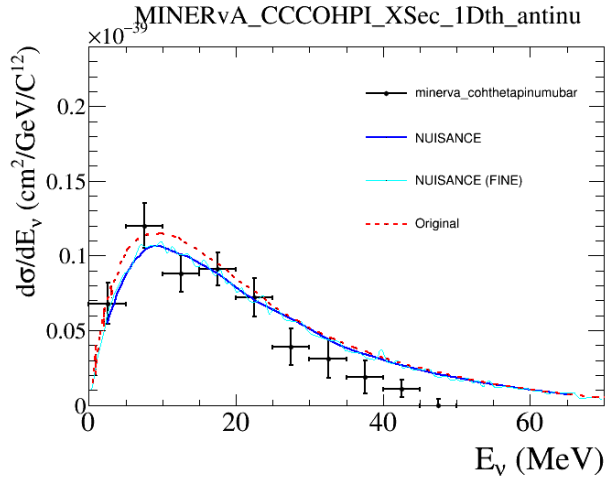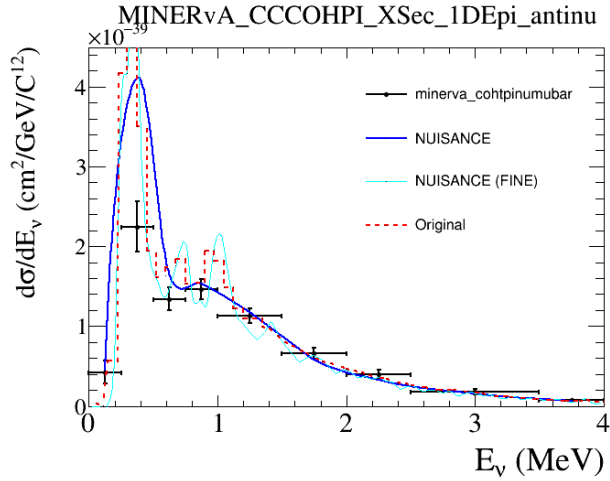## MINERvA_CCCOHPI_XSec_1DEpi_nu

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_ν (MeV)
- **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_1DEpi_nu
- **data** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data/MINERvA/CCcoh
- **covar** : /data/stowell/NIWG/NPCTuning/Validations/minerva-validation-template/builds/v2r6/data/MINERvA/CCco
- **originalname** : MINERvA_CCCOHPI_XSec_1DEpi_nu
- χ^2 : 0
- **NDOF** : 9
- χ^2/**NDOF** : 0

MINERvA_CCCOHPI_XSec_1DEnu_antinu

MINERvA_CCCOHPI_XSec_1Dth_antinu

MINERvA_CCCOHPI_XSec_1DEpi_antinu

MINERvA_CCinc_XSec_1DEnu_ratio_C12_CH

MINERvA_CCinc_XSec_1DEnu_ratio_Fe56_CH

MINERvA_CCinc_XSec_1DEnu_ratio_Pb208_CH

MINERvA_CCinc_XSec_1Dx_ratio_C12_CH

MINERvA_CCinc_XSec_1Dx_ratio_Fe56_CH

MINERvA_CCinc_XSec_1Dx_ratio_Pb208_CH