NEUT 1π channels

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Foreword

- Plots generated with **NEUT v5.3.3 nominal**
- The 1π model is described by **Graczyk, Kielczewska, Przewlocki & Sobczyk** (Phys.Rev.D80:093001,2009) which only considers the Δ resonance, and is **NOT** the full Rein-Sehgal model
- This version of NEUT is **tuned to ANL and BNL** 1π data by Phil Rodriguez (T2K TN-197)
- This tune found $M_A^{1\pi} = 0.95$, $C_5^A = 1.01$, $I_{1/2} = 1.30$
- The coherent model is **Berger-Sehgal**, which was not by default included in NEUT v5.3.3
- Deuterium effects are **NOT** considered
- Any data/MC discrepancy is thereby due to some nuclear effect, not present in a H_2 or D_2 environment
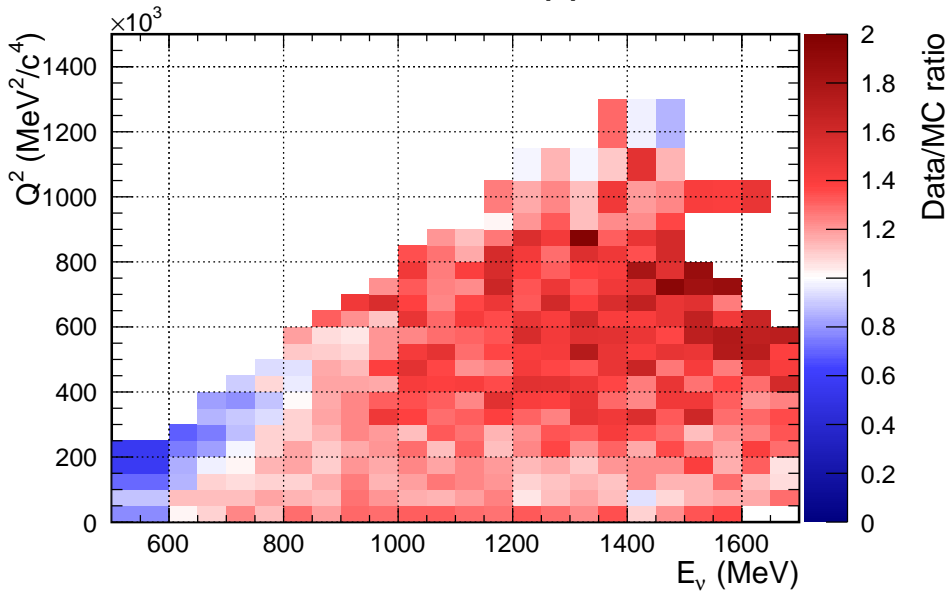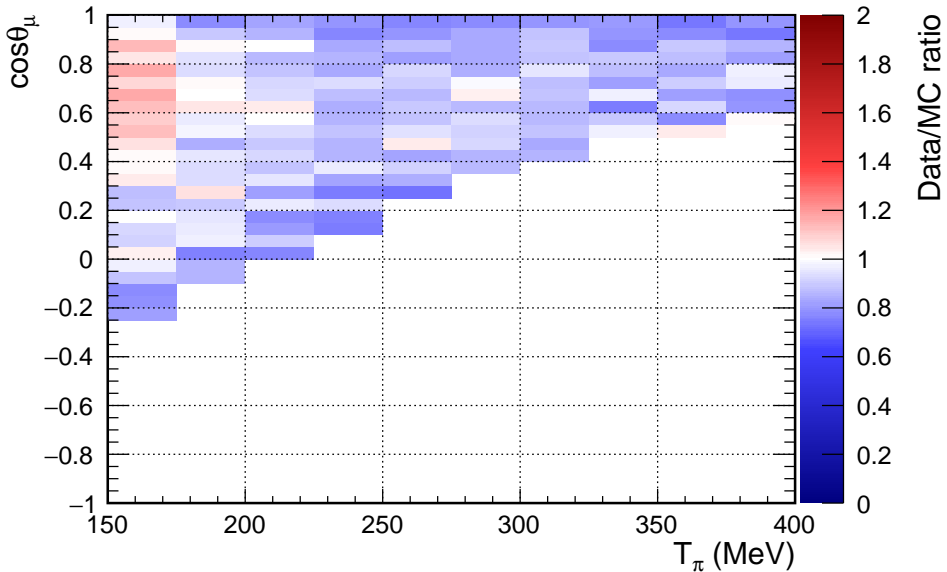
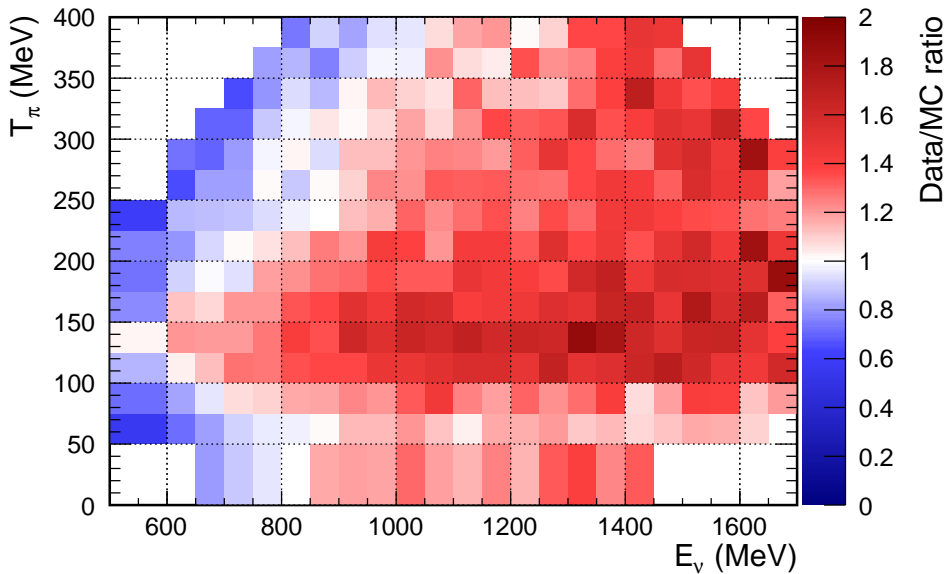# Table of contents

$$\text{CC1}\pi^+$$
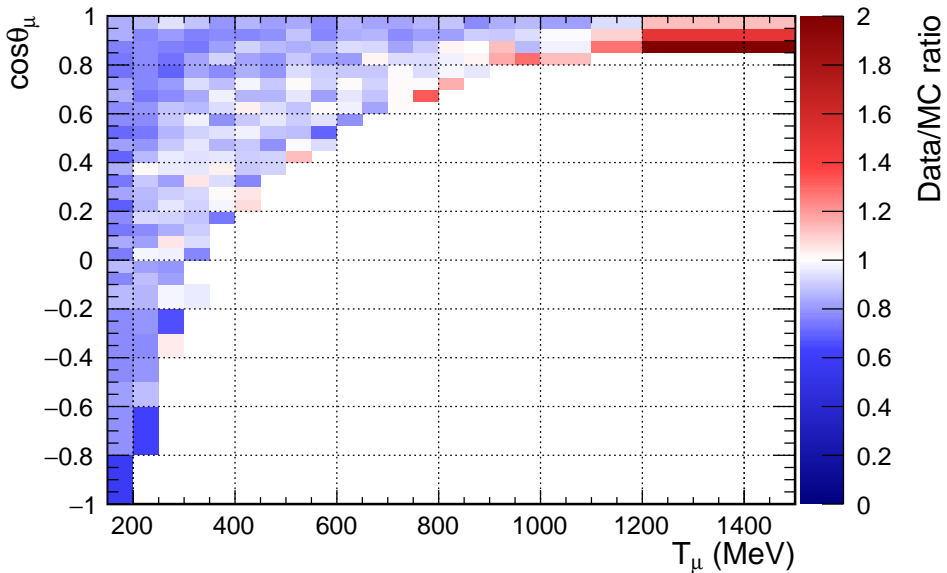
Data/MC ratio for MB_CCpip_2DQ2Enu
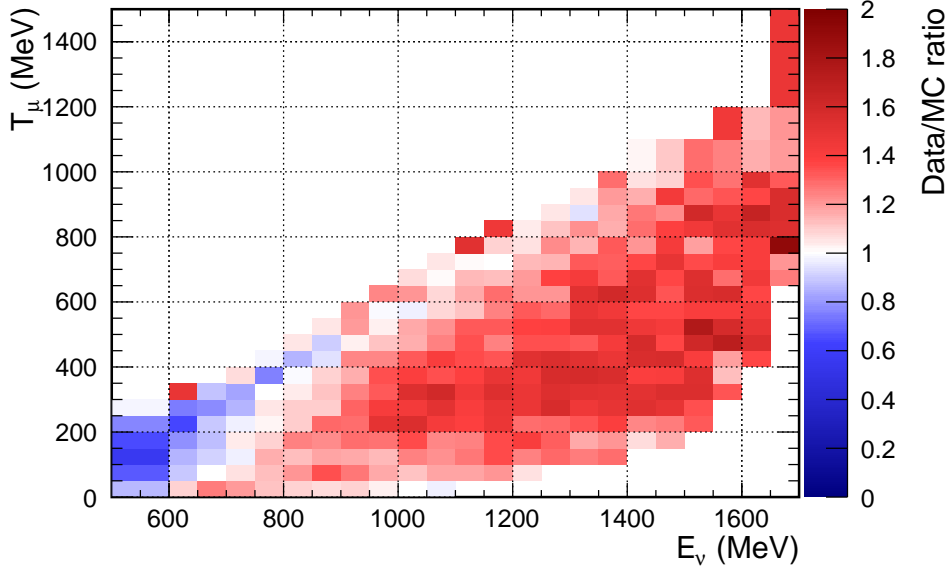
Data/MC ratio for MB_CCpip_2DTpiCospi

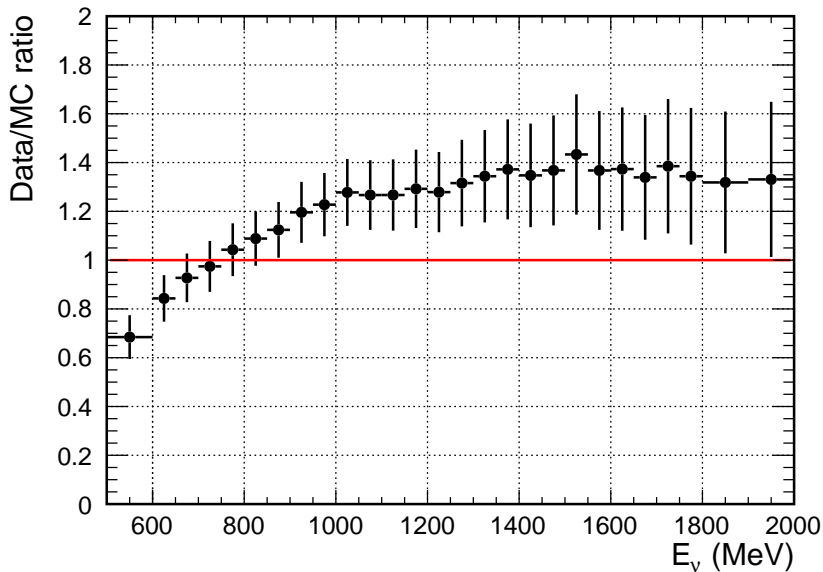**Data/MC ratio for MB_CCpip_2DTpiEnu**
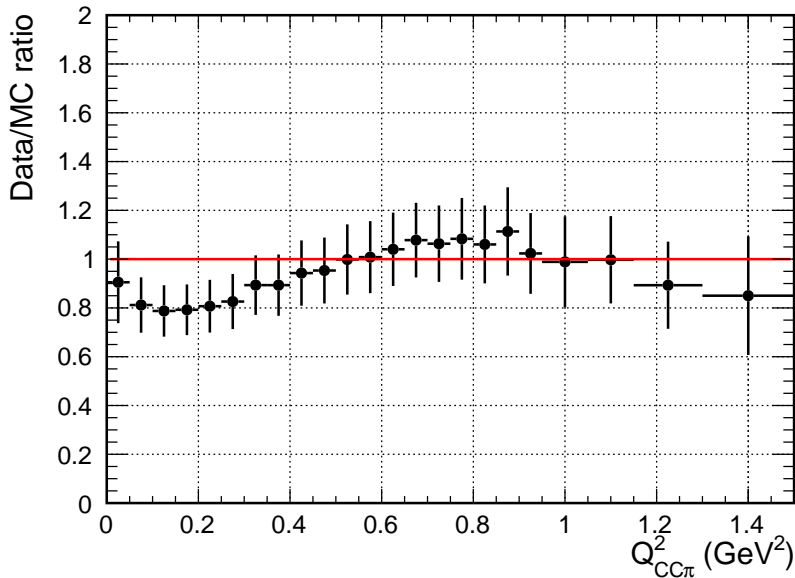
Data/MC ratio for MB_CCpip_2DTuCosmu
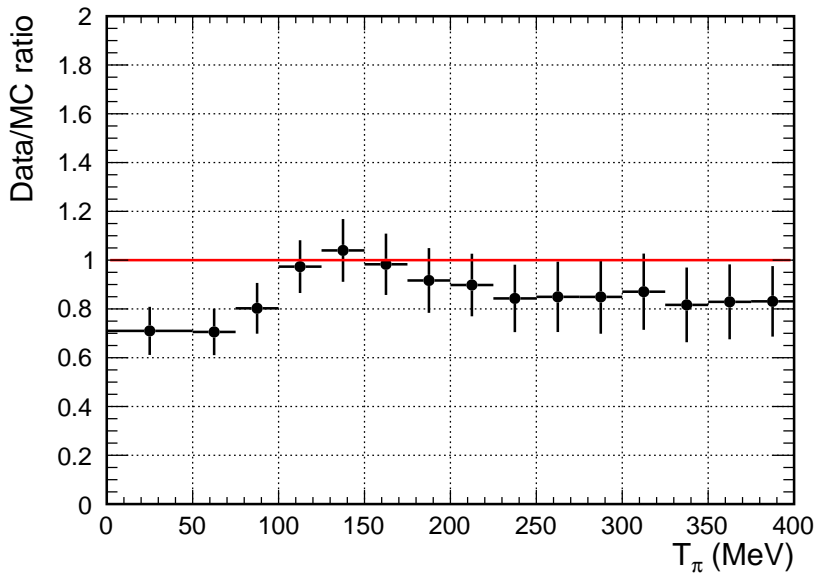
Data/MC ratio for MB_CCpip_2DTuEnu

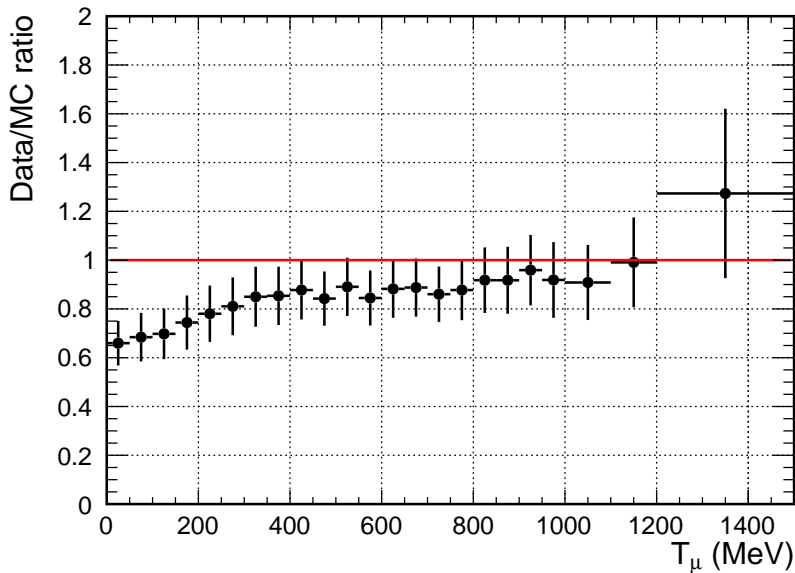**Data/MC ratio for MB_CCpip_numu_1DEnu**

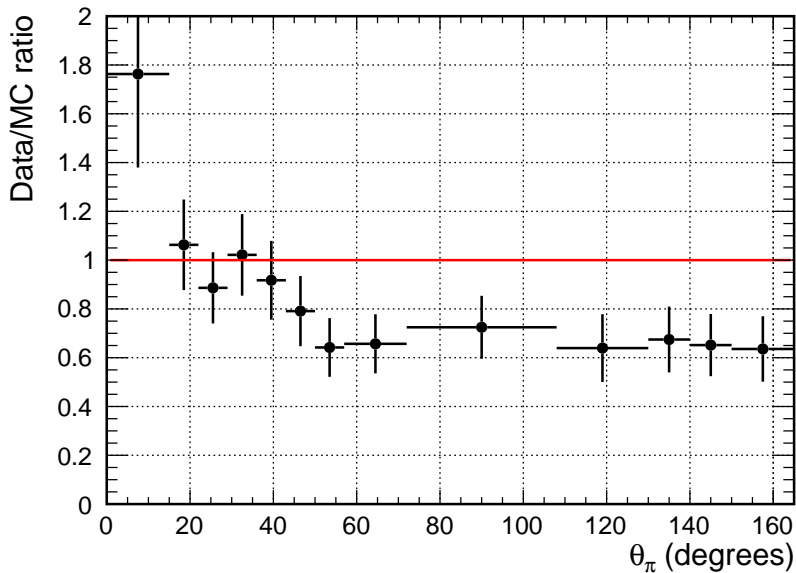**Data/MC ratio for MB_CCpip_numu_1DQ2**

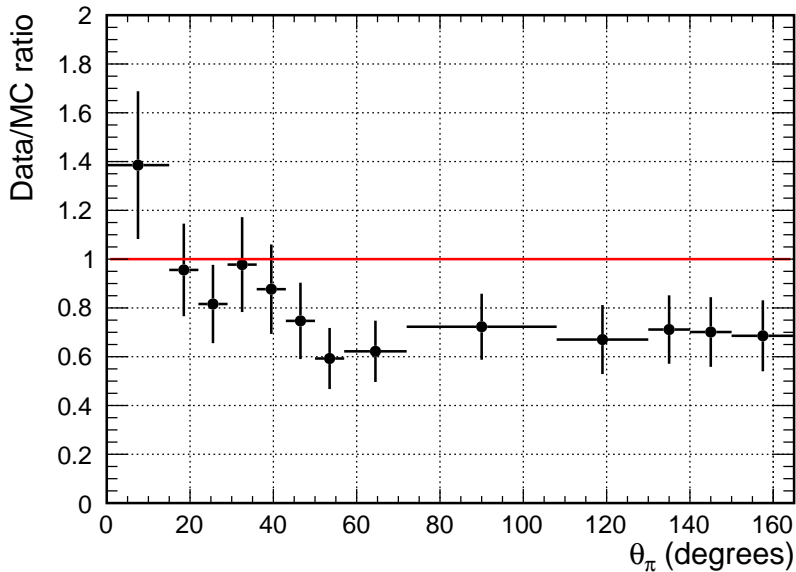**Data/MC ratio for MB_CCpip_numu_1DTpi**

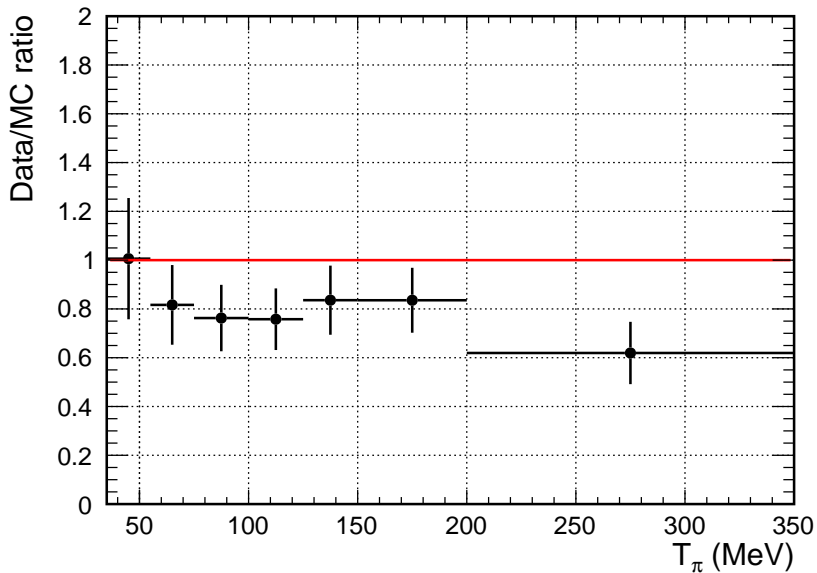**Data/MC ratio for MB_CCpip_numu_1DTu**

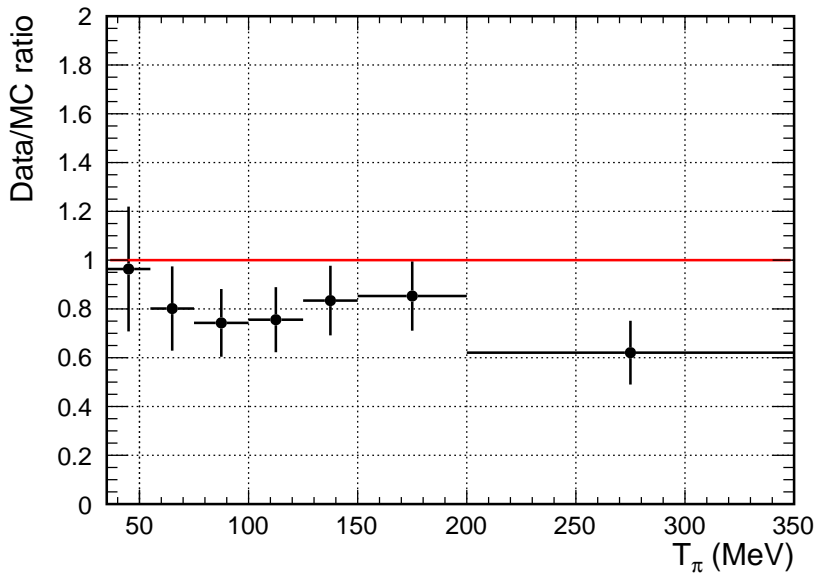**Data/MC ratio for MINERvA_CCpip_numu_1Dth_20deg**

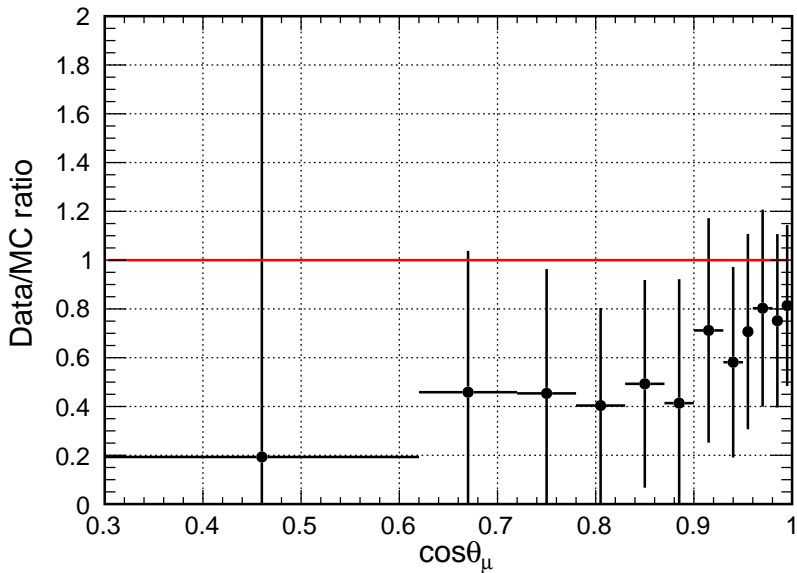**Data/MC ratio for MINERvA_CCpip_numu_1Dth**

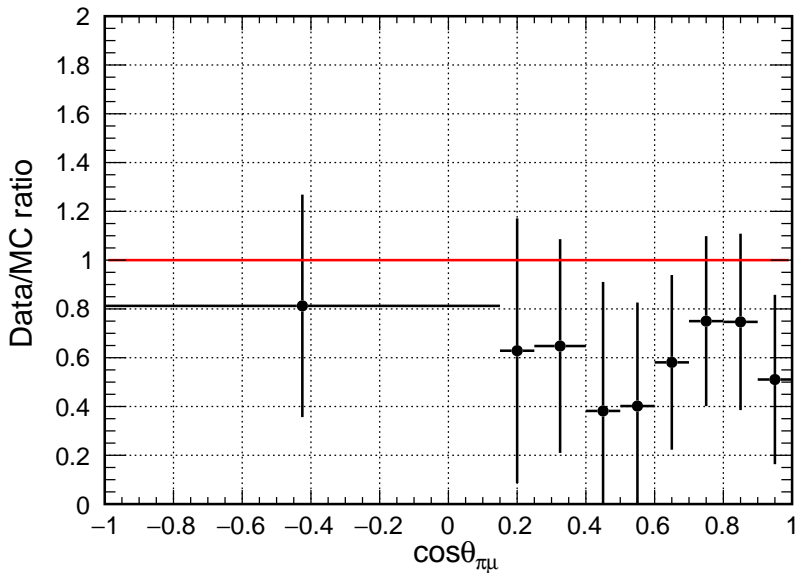**Data/MC ratio for MINERvA_CCpip_numu_1DTpi_20deg**

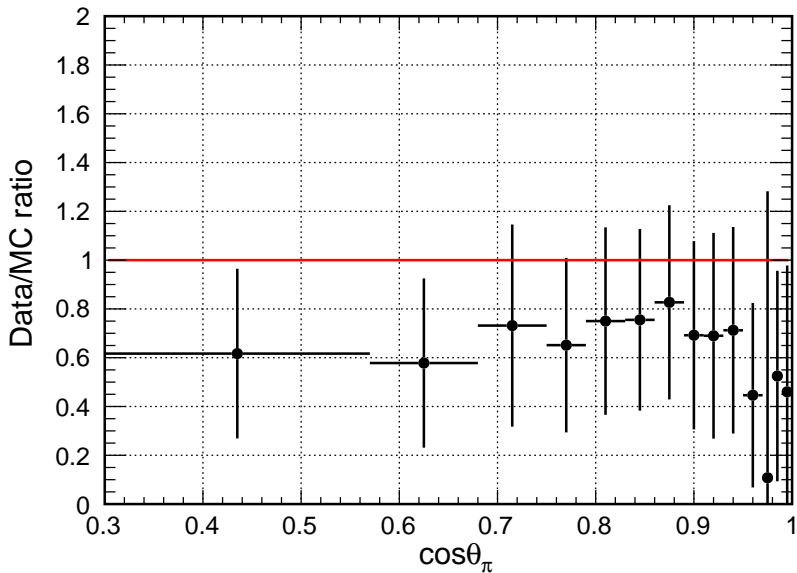**Data/MC ratio for MINERvA_CCpip_numu_1DTpi**
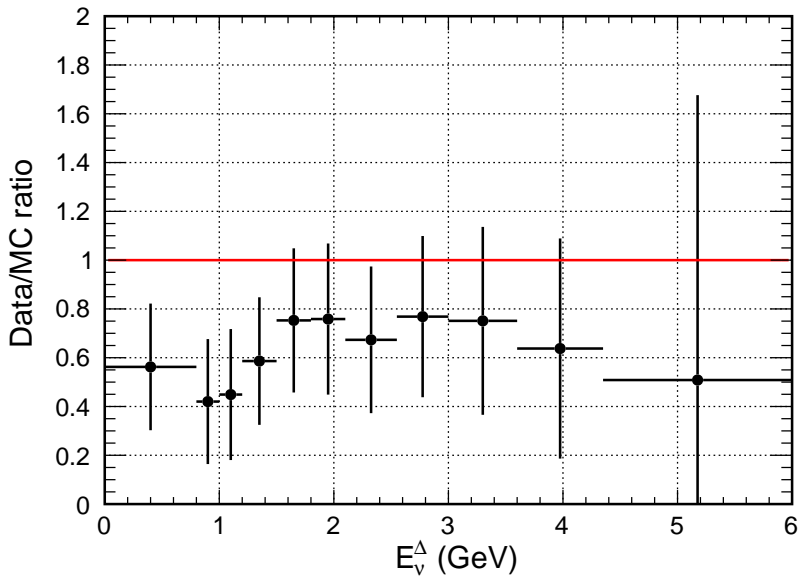
Data/MC ratio for T2K_CCpip_1Dcosmu_nu
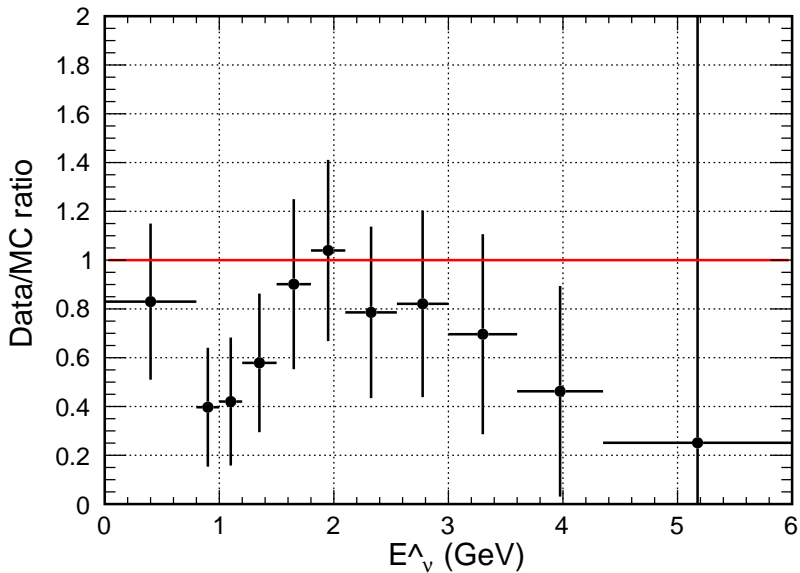
Data/MC ratio for T2K_CCpip_1Dcosmupi_nu

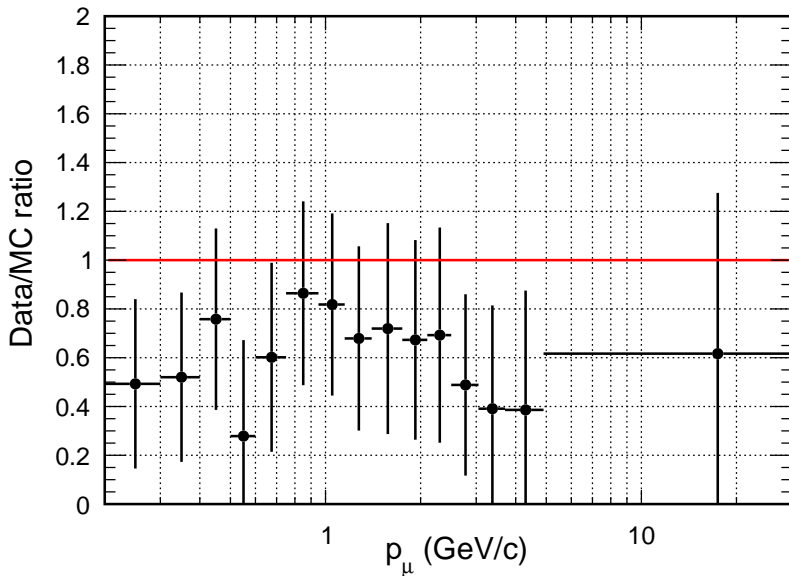**Data/MC ratio for T2K_CCpip_1Dcospi_nu**

Data/MC ratio for T2K_CCpip_1DEnuDelta_nu

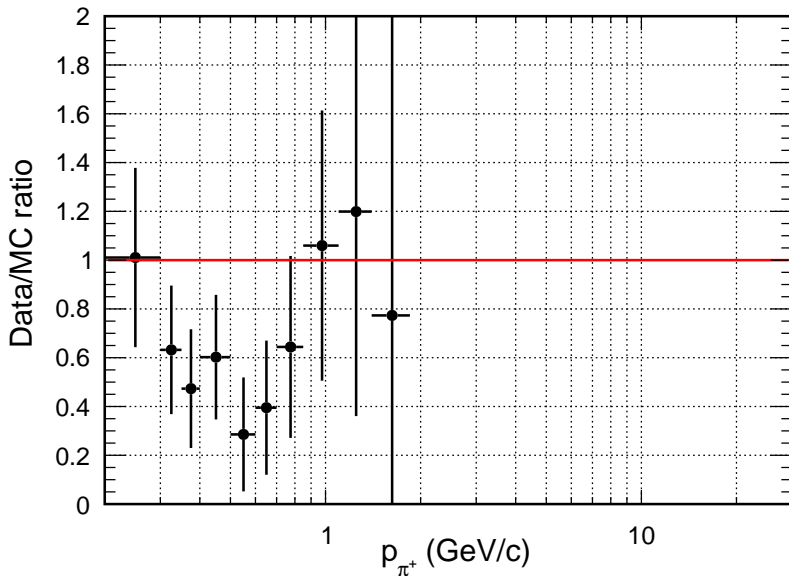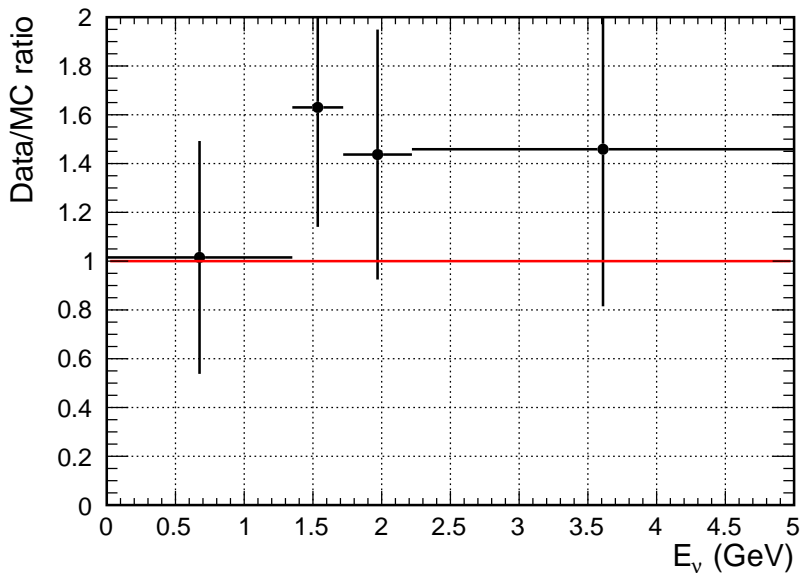**Data/MC ratio for T2K_CCpip_1DEnuMB_nu**

Data/MC ratio for T2K_CCpip_1Dpmu_nu

Data/MC ratio for T2K_CCpip_1Dppip_nu

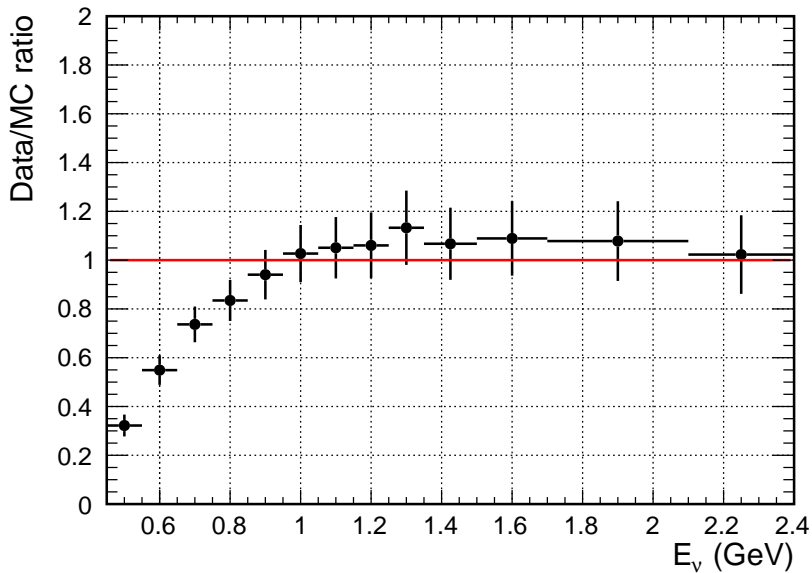Y-axis: Data/MC ratio
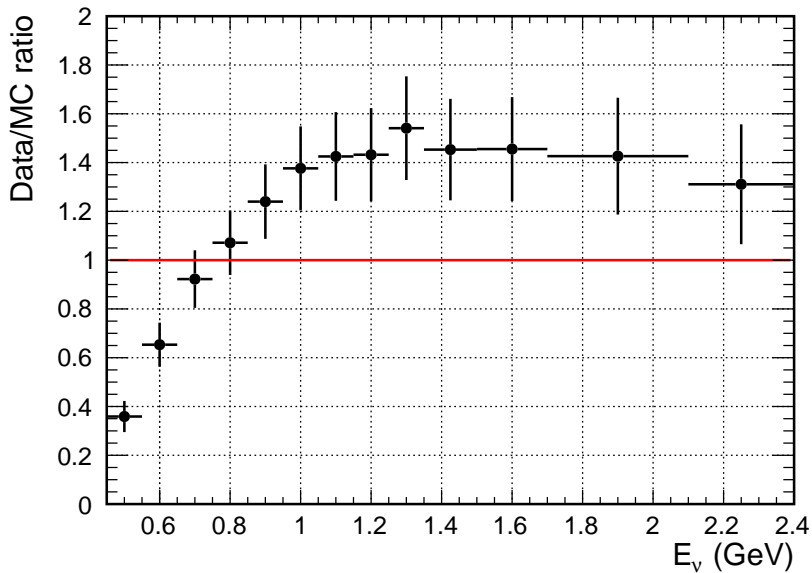
X-axis: p_{π^+} (GeV/c)

CC1π^+/CCQE

Data/MC ratio for K2K_CCpip_CCQE_numu_1DEnu

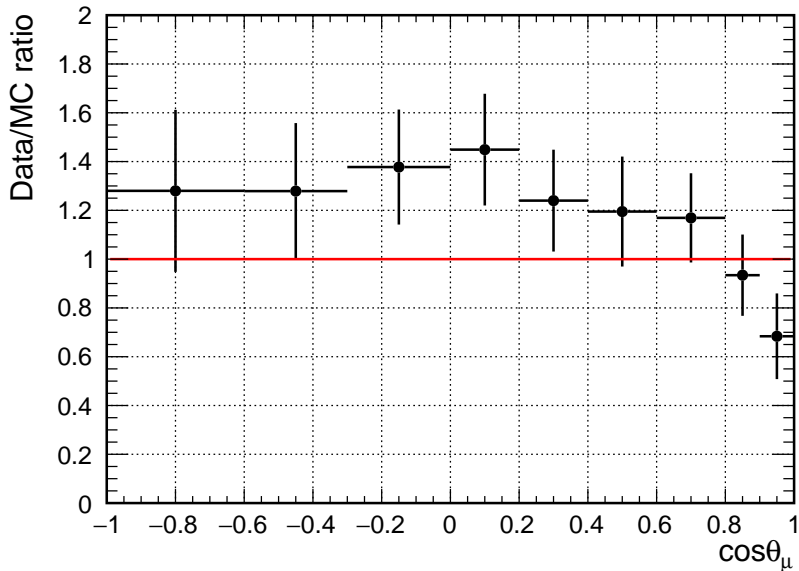**Data/MC ratio for MB_CCpip_CCQELike_numu_1DEnu**

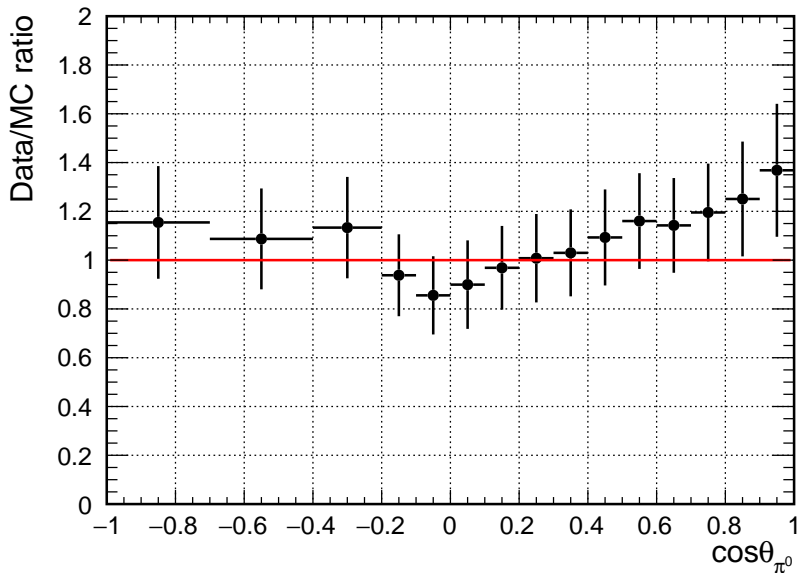**Data/MC ratio for MB_CCpip_CCQE_numu_1DEnu**

$$CC1\pi^0$$

Data/MC ratio for MB_CCpi0_numu_1Dcosmu

Data/MC ratio for MB_CCpi0_numu_1Dcospi0
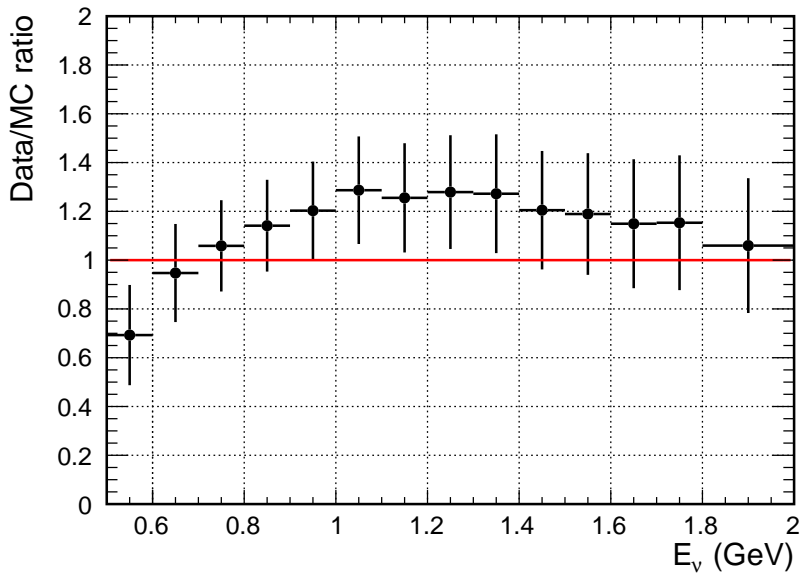
Data/MC ratio

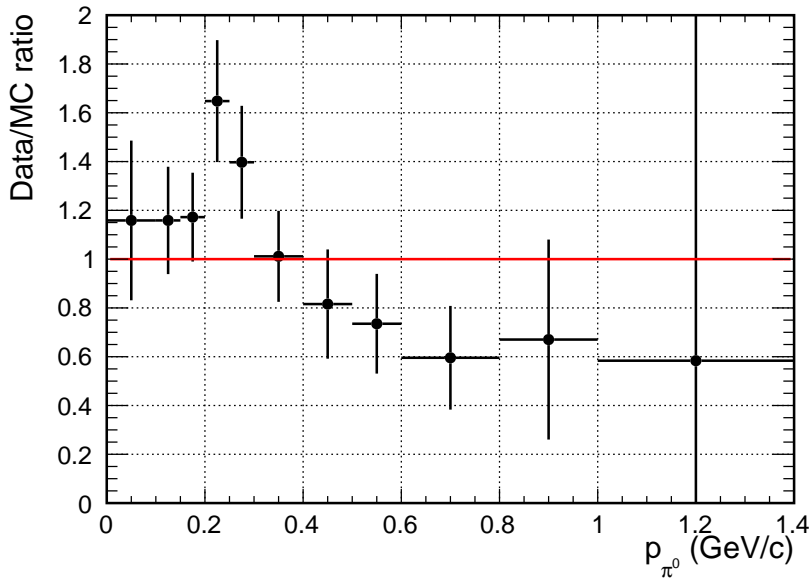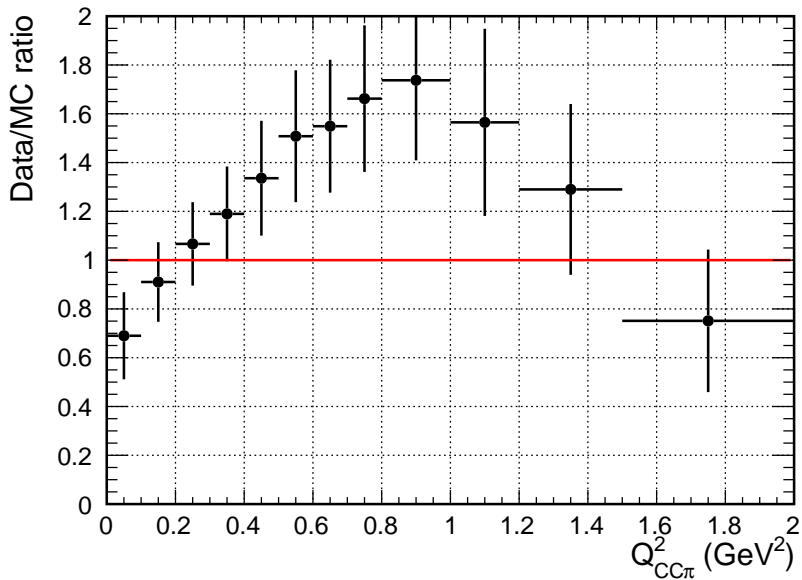$\cos\theta_{\pi^0}$
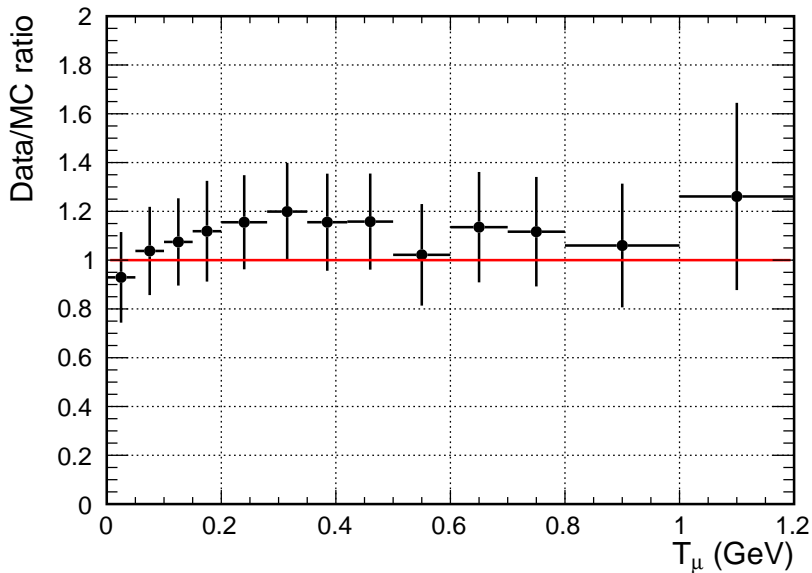
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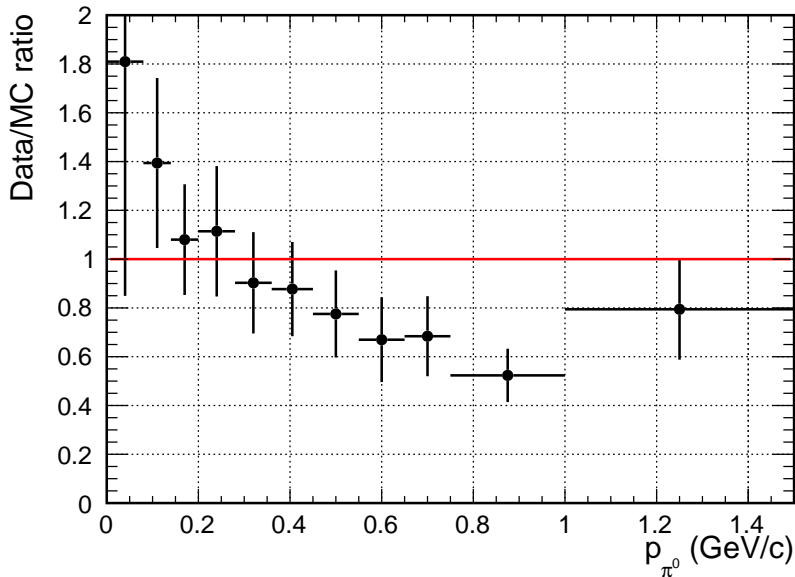Data/MC ratio for MB_CCpi0_numu_1Dppi0
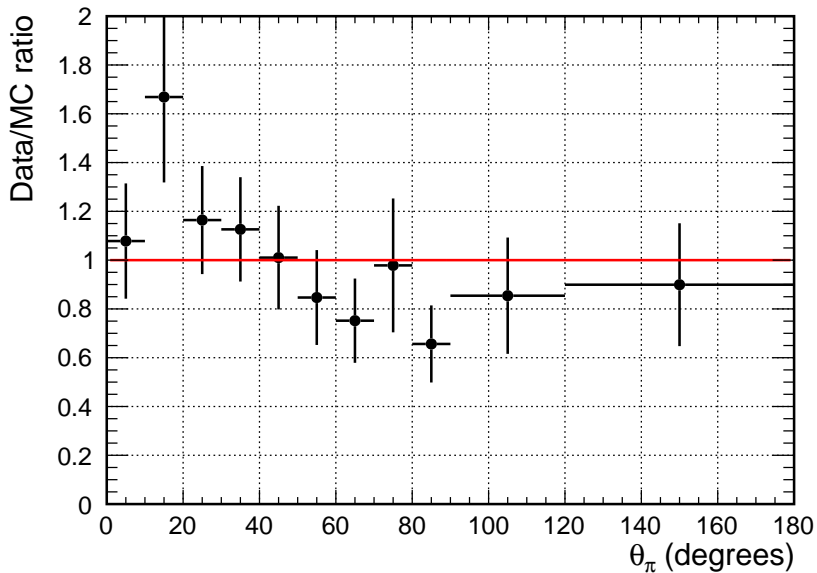
Data/MC ratio for MB_CCpi0_numu_1DQ2

Data/MC ratio for MB_CCpi0_numu_1DTu
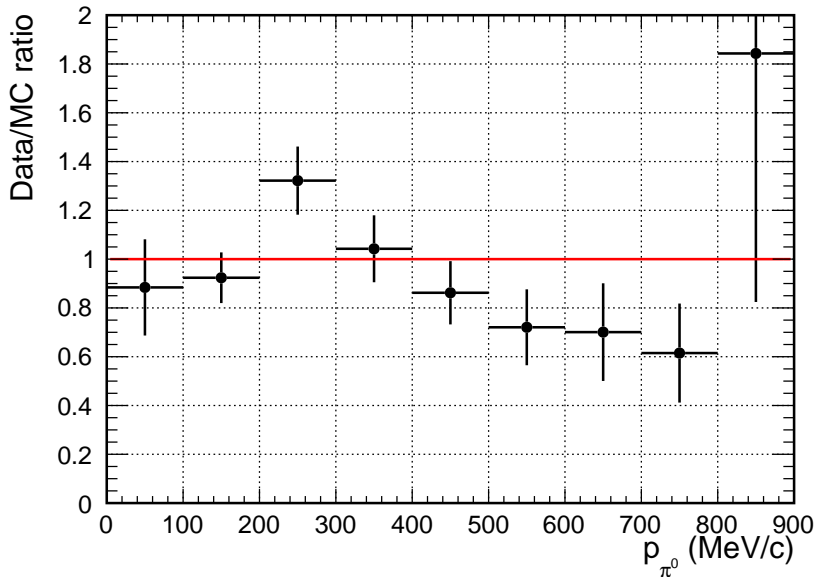
Data/MC ratio for MINERvA_CCpi0_numubar_1Dppi0

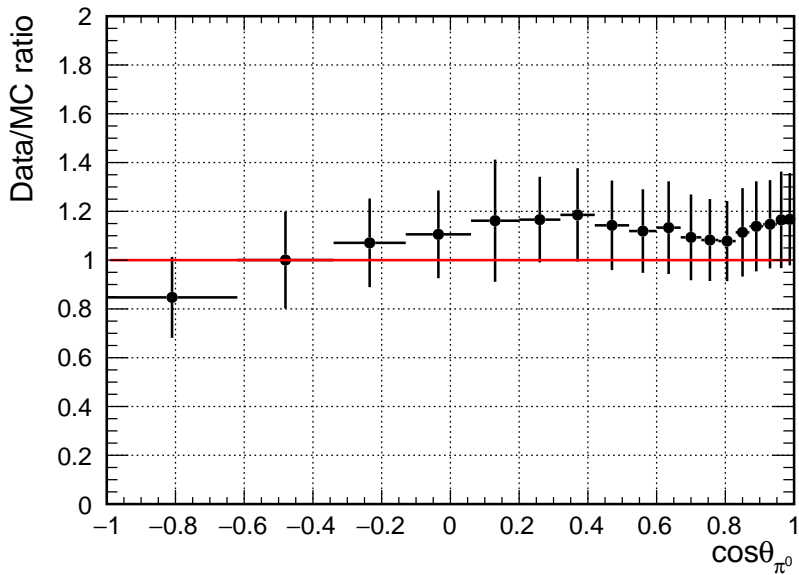**Data/MC ratio for MINERvA_CCpi0_numubar_1Dth**
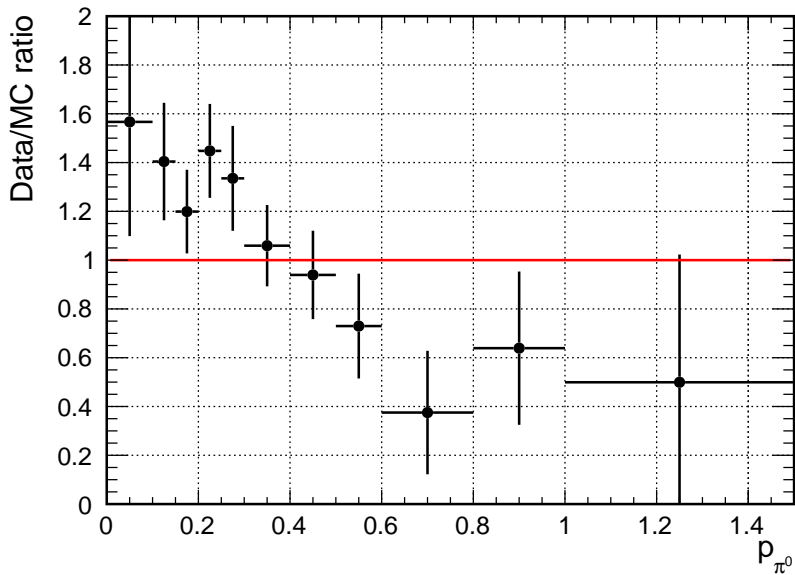
$$NC1\pi^0$$

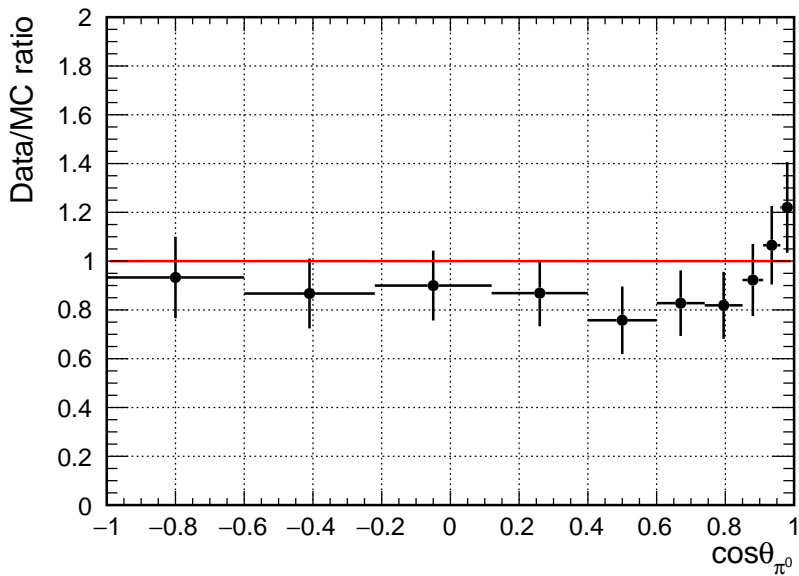**Data/MC ratio for K2K_NCpi0_numu_1Dppi0**

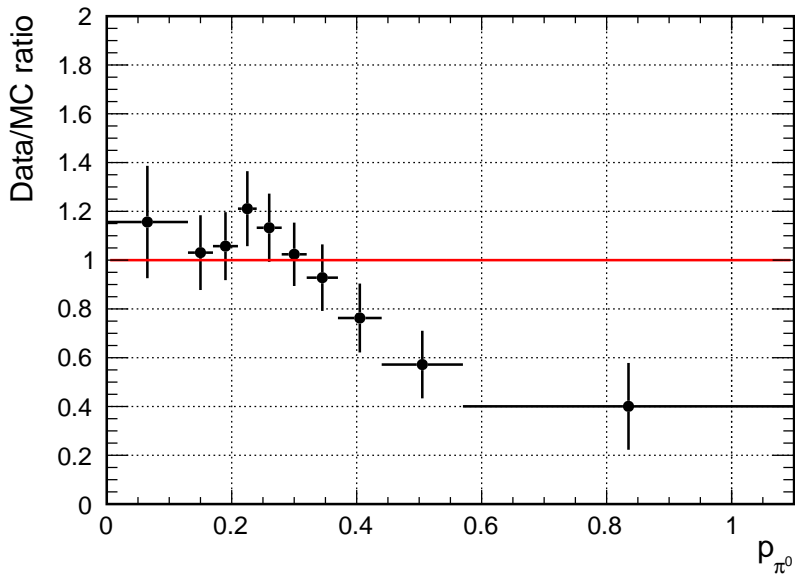**Data/MC ratio for MB_NCpi0_joint_nu_1Dcospi0**

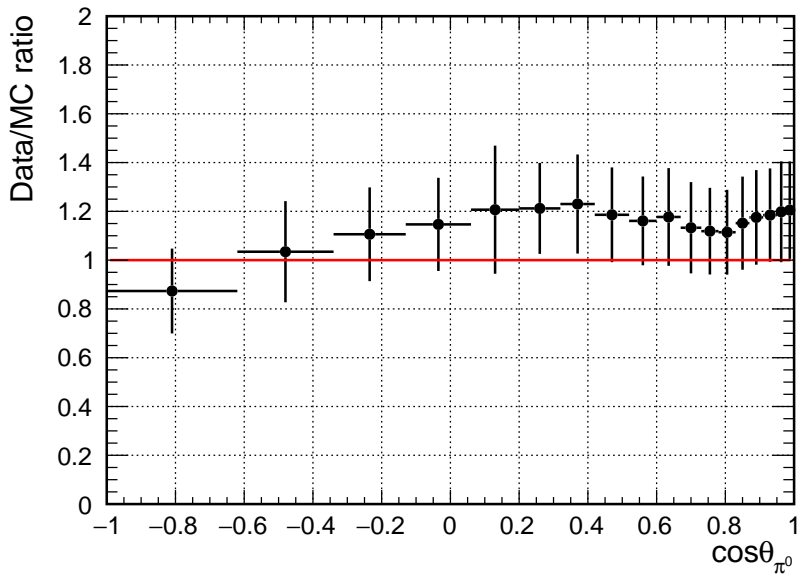**Data/MC ratio for MB_NCpi0_joint_nu_1Dppi0**
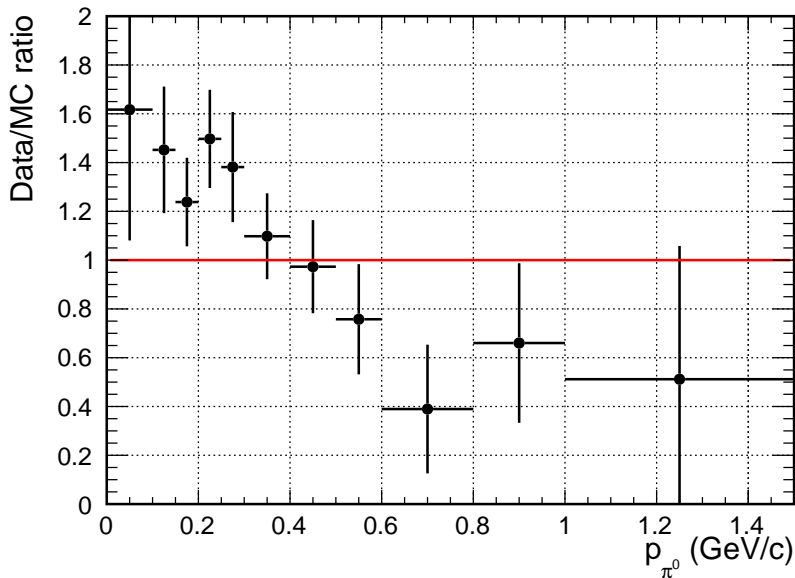
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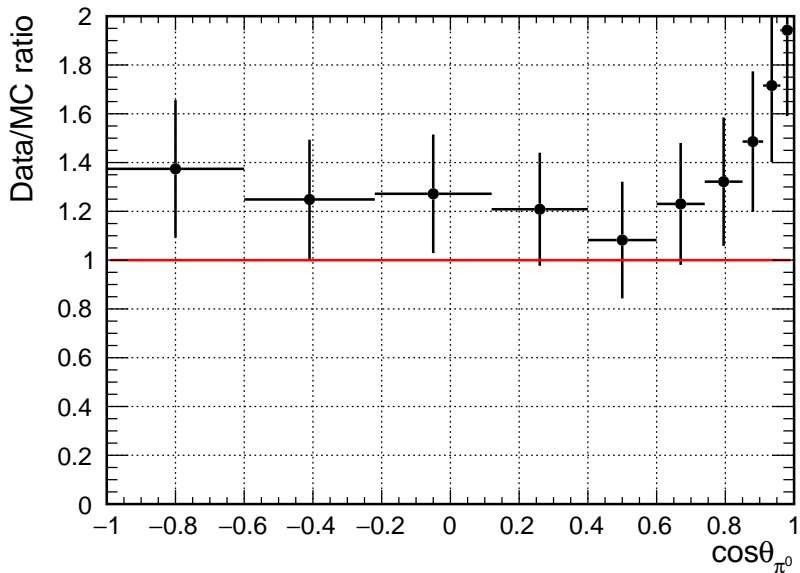
Data/MC ratio for MB_NCpi0_joint_nubar_1Dppi0

Data/MC ratio for MB_NCpi0_numu_1Dcospi0

Data/MC ratio for MB_NCpi0_numu_1Dppi0

Data/MC ratio for MB_NCpi0_numubar_1Dcospi0

Data/MC ratio for MB_NCpi0_numubar_1Dppi0