

GENIE Event Sample Comparisons

Event Sample:

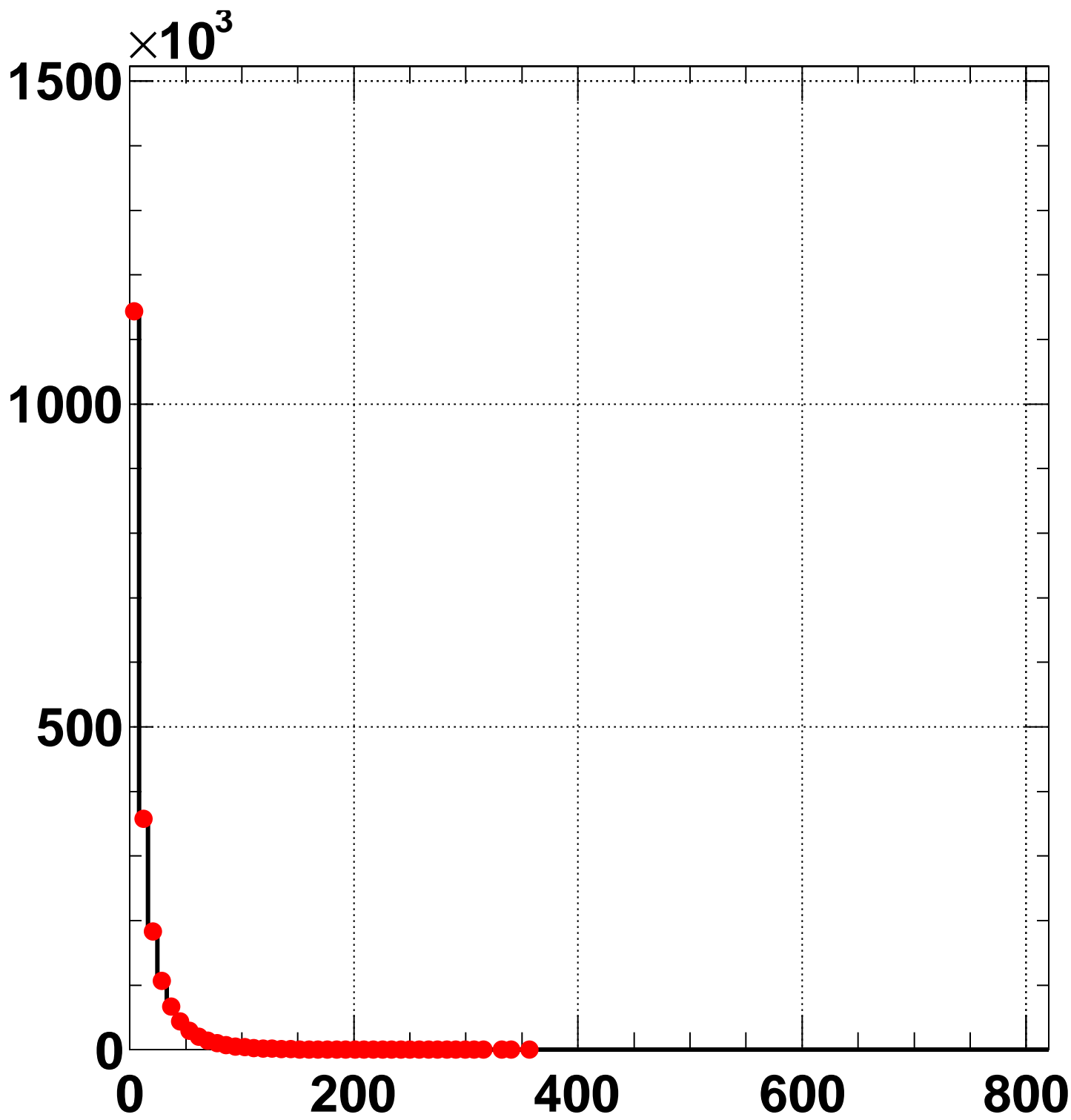
Notes:

Event Numbers:

ALL : 2000000 [test sample], 2000000 [ref sample]
QEL : 42921 [test sample], 42827 [ref sample]
QEL-CC : 29764 [test sample], 29670 [ref sample]
QEL-NC : 13157 [test sample], 13157 [ref sample]
RES : 116615 [test sample], 116478 [ref sample]
RES-CC : 84422 [test sample], 84142 [ref sample]
RES-NC : 32193 [test sample], 32336 [ref sample]
DIS : 1821905 [test sample], 1821730 [ref sample]
DIS-CC : 1339378 [test sample], 1340317 [ref sample]
DIS-NC : 482527 [test sample], 481413 [ref sample]
COH : 5591 [test sample], 5781 [ref sample]
COH-CC : 3653 [test sample], 3798 [ref sample]
COH-NC : 1938 [test sample], 1983 [ref sample]
IMD : 0 [test sample], 0 [ref sample]
NuE-EL : 285 [test sample], 275 [ref sample]
DIS-CHARM: 95923 [test sample], 96160 [ref sample]
QEL-CHARM: 0 [test sample], 0 [ref sample]

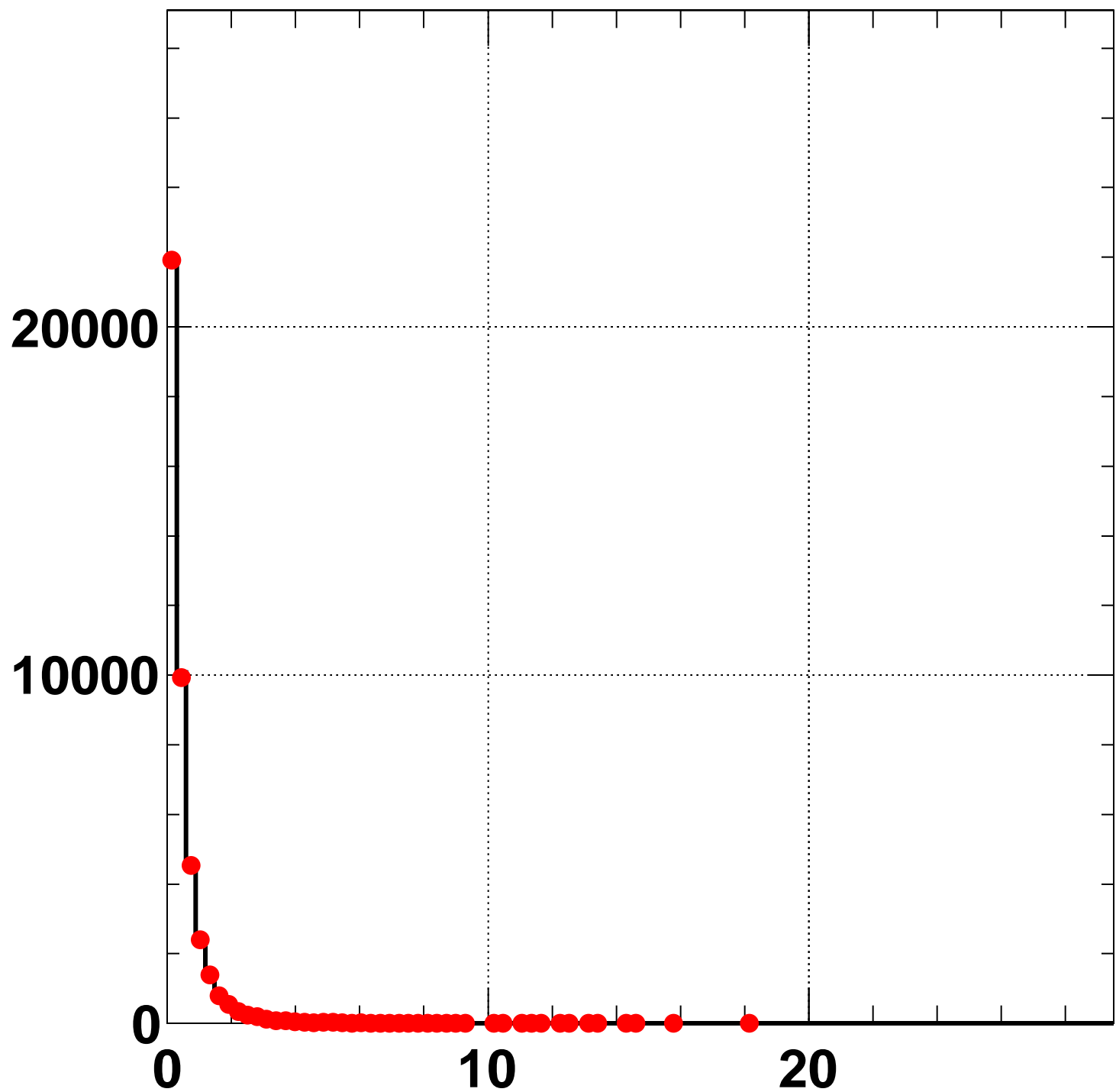
Selected Kinematical Quantities

selected Q2 for all events



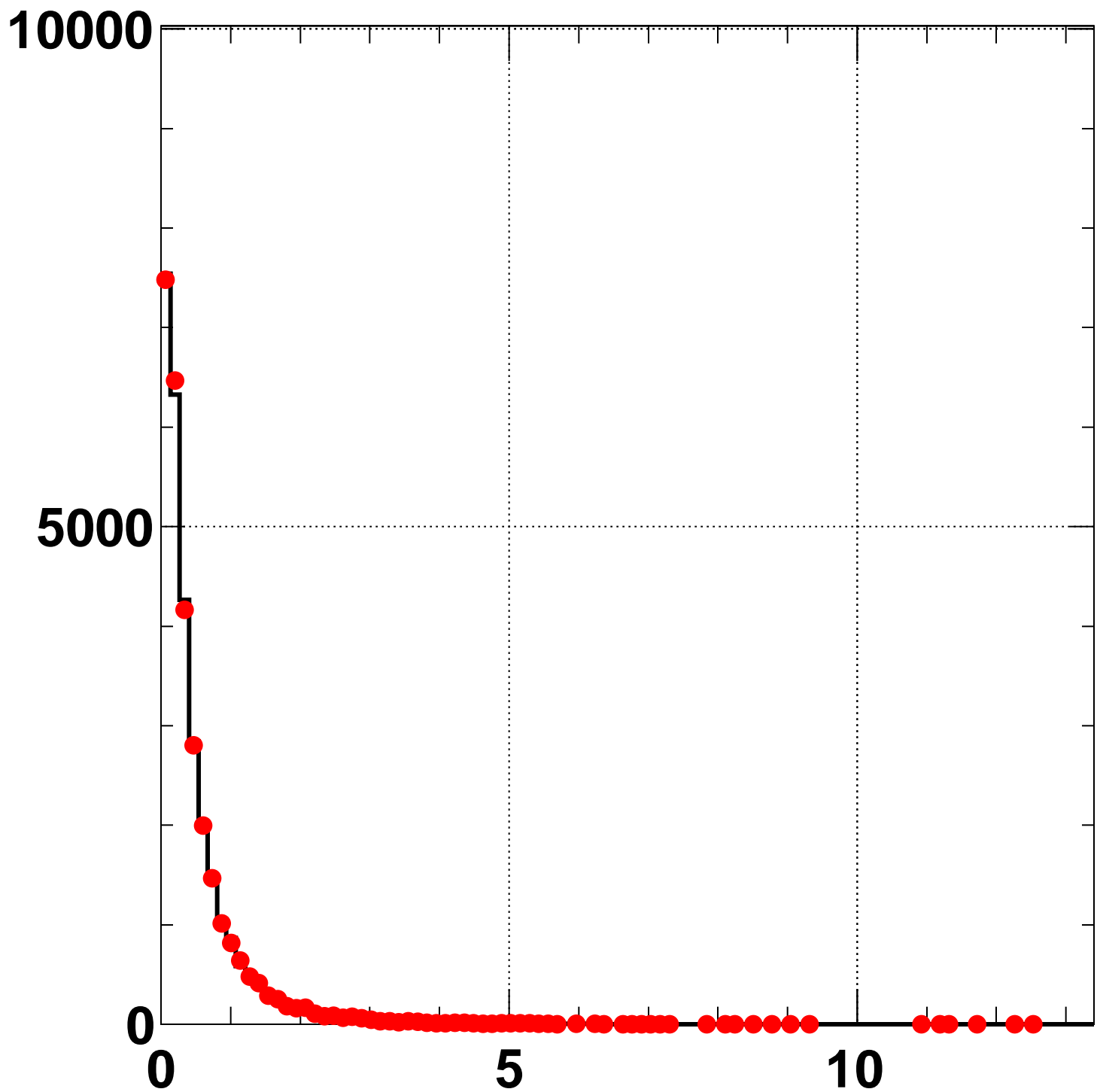
Q2s

selected Q2 for QEL events



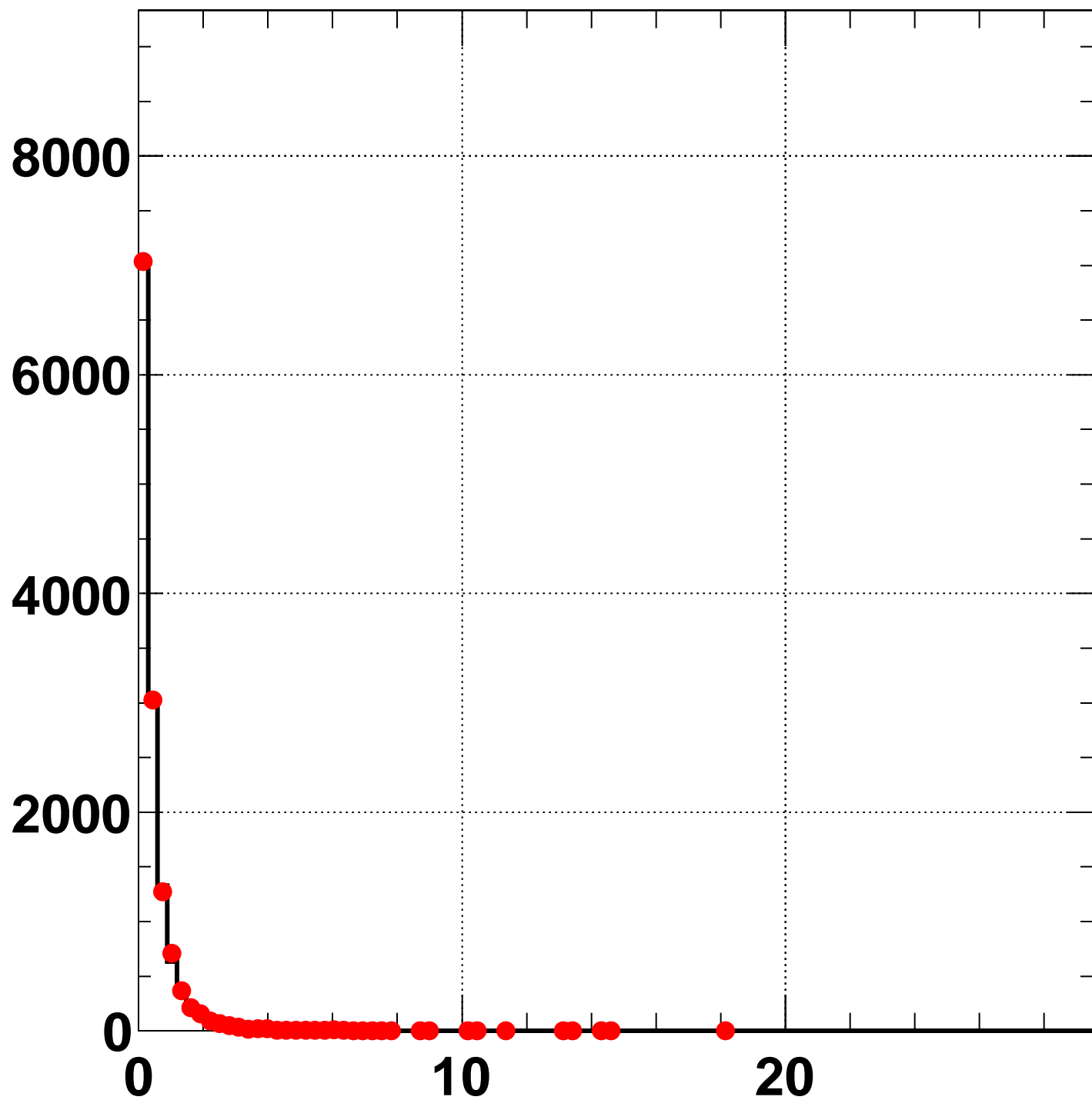
Q2s

selected Q2 for QEL CC events



Q2s

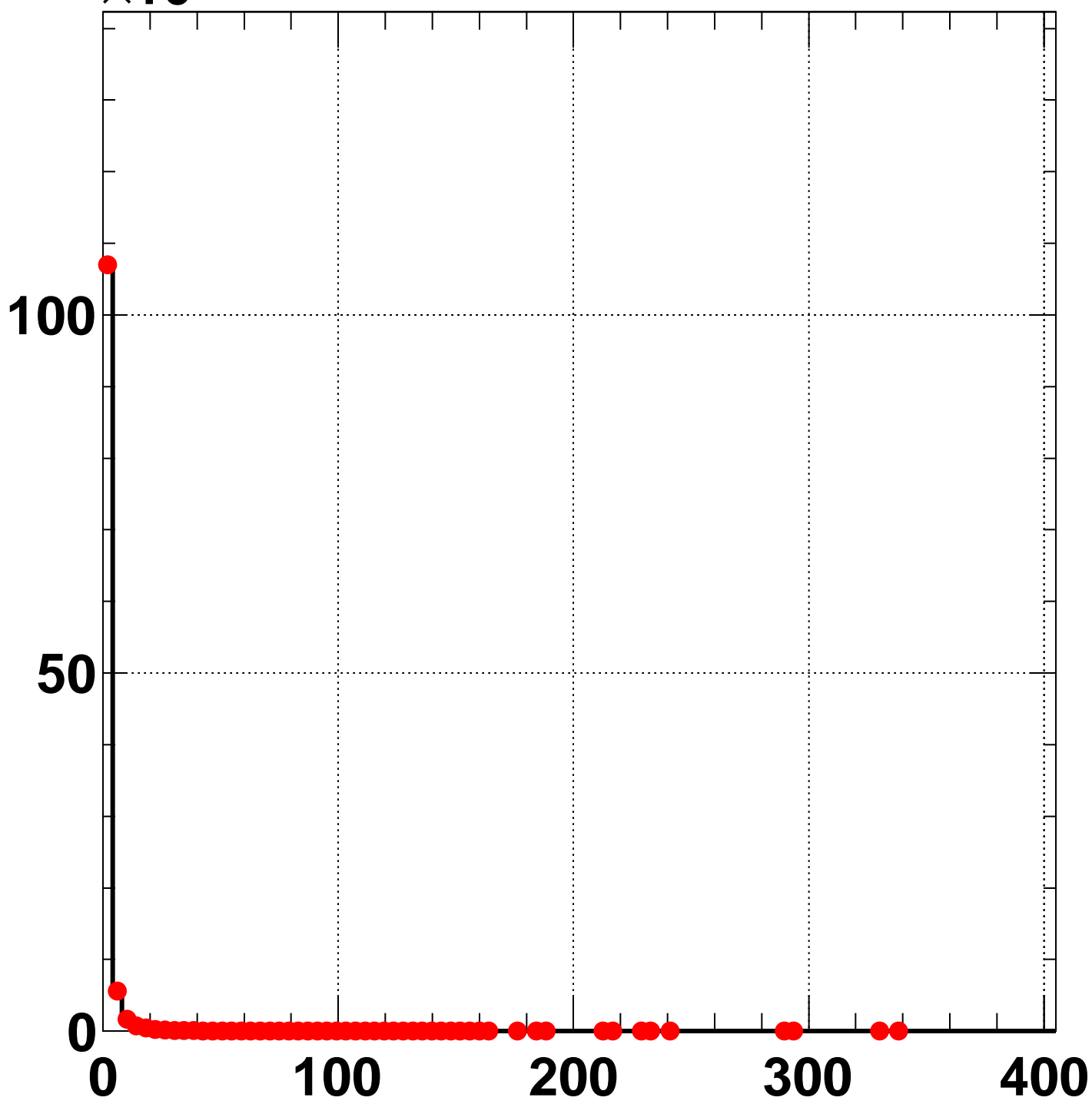
selected Q2 for QEL NC events



Q2s

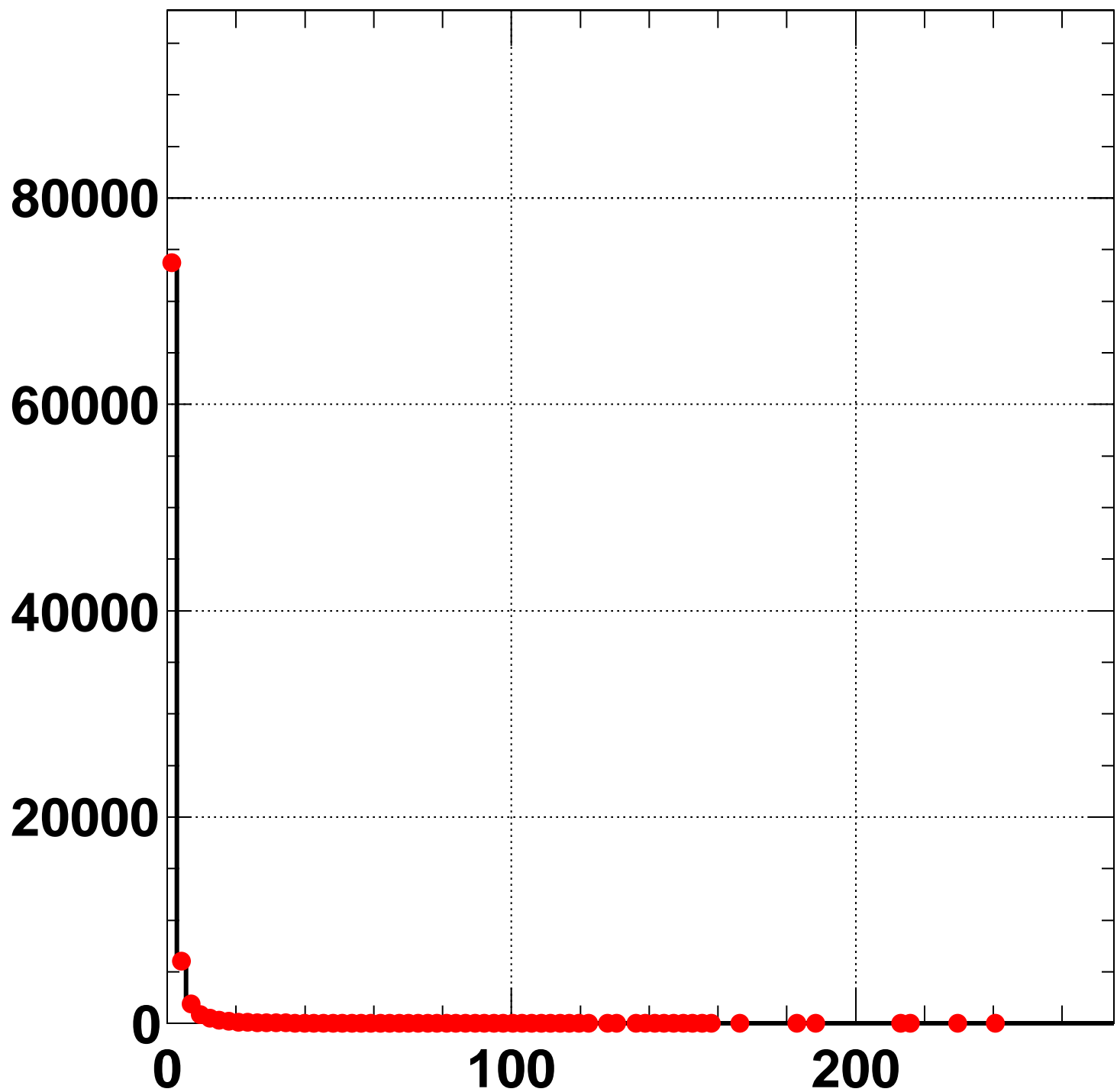
selected Q2 for RES events

$\times 10^3$



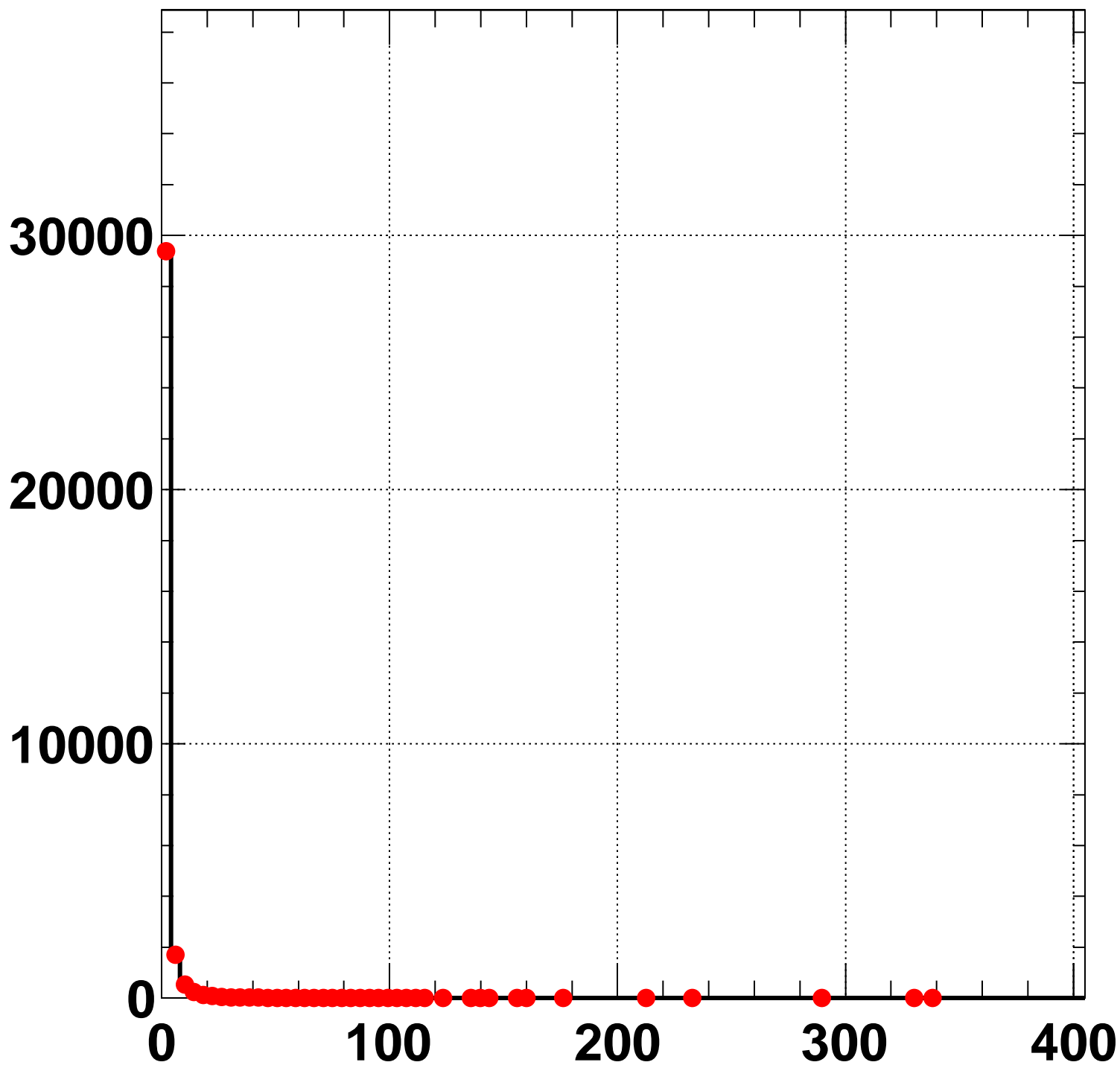
Q2s

selected Q2 for RES CC events



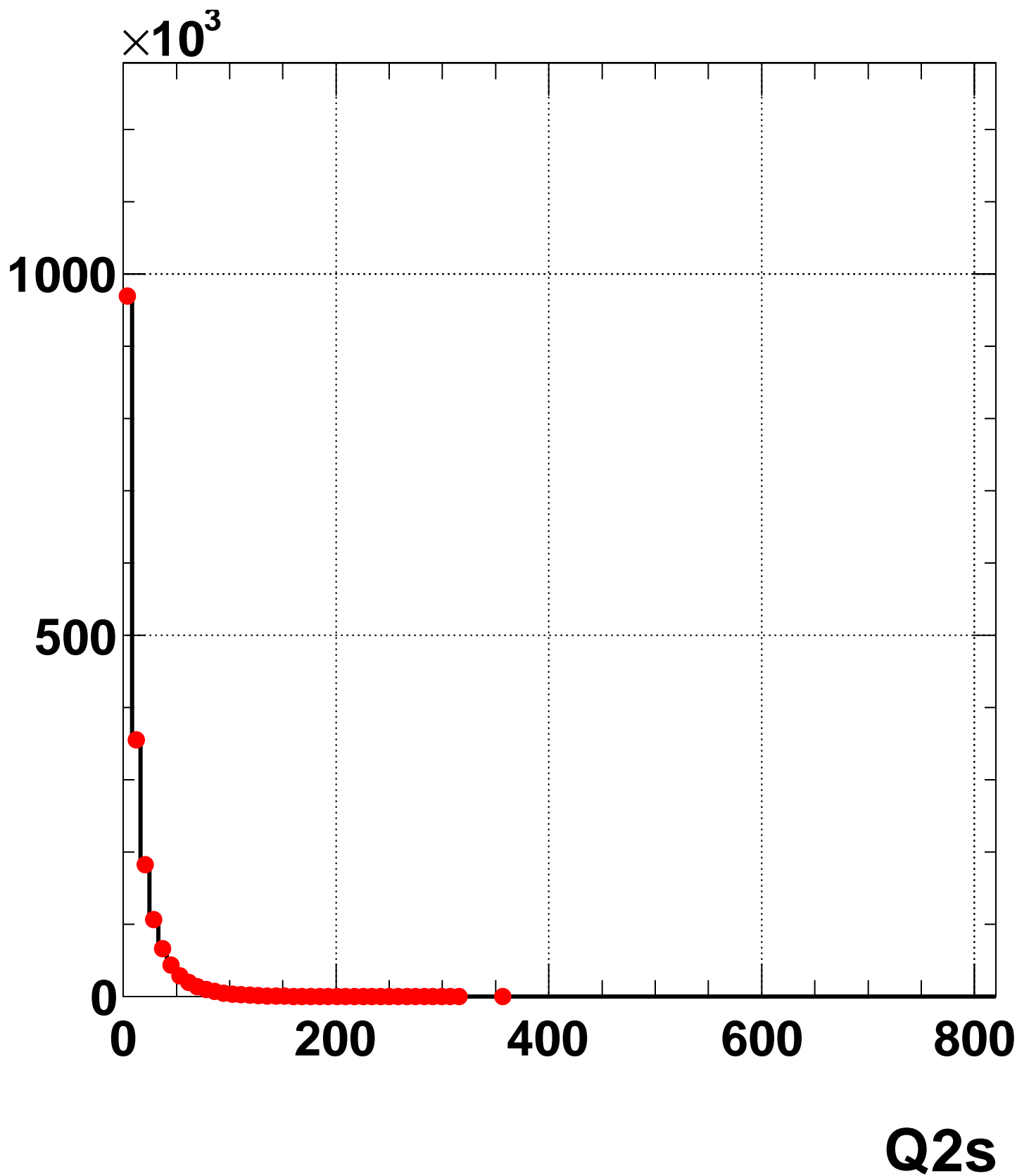
Q2s

selected Q2 for RES NC events

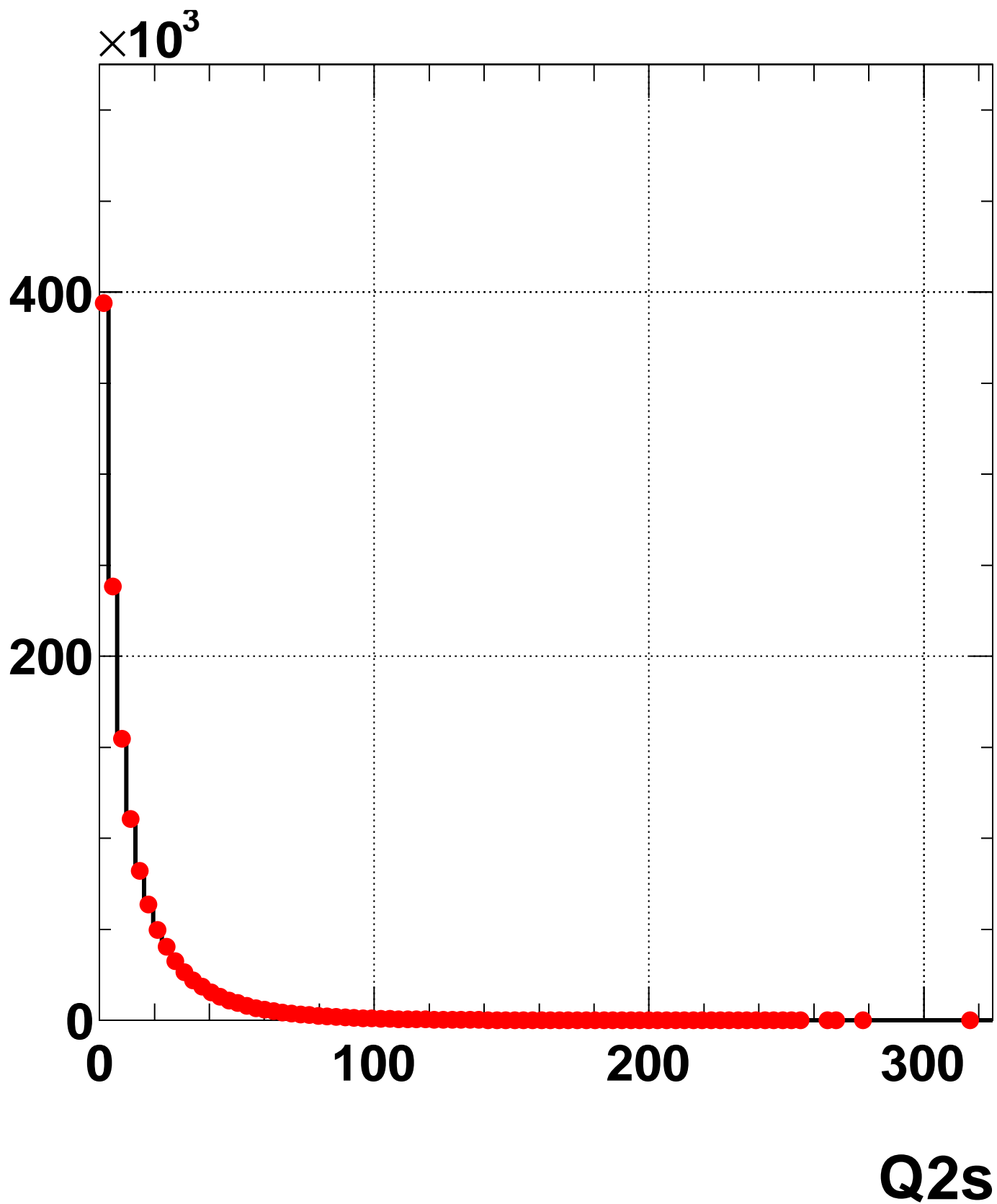


Q2s

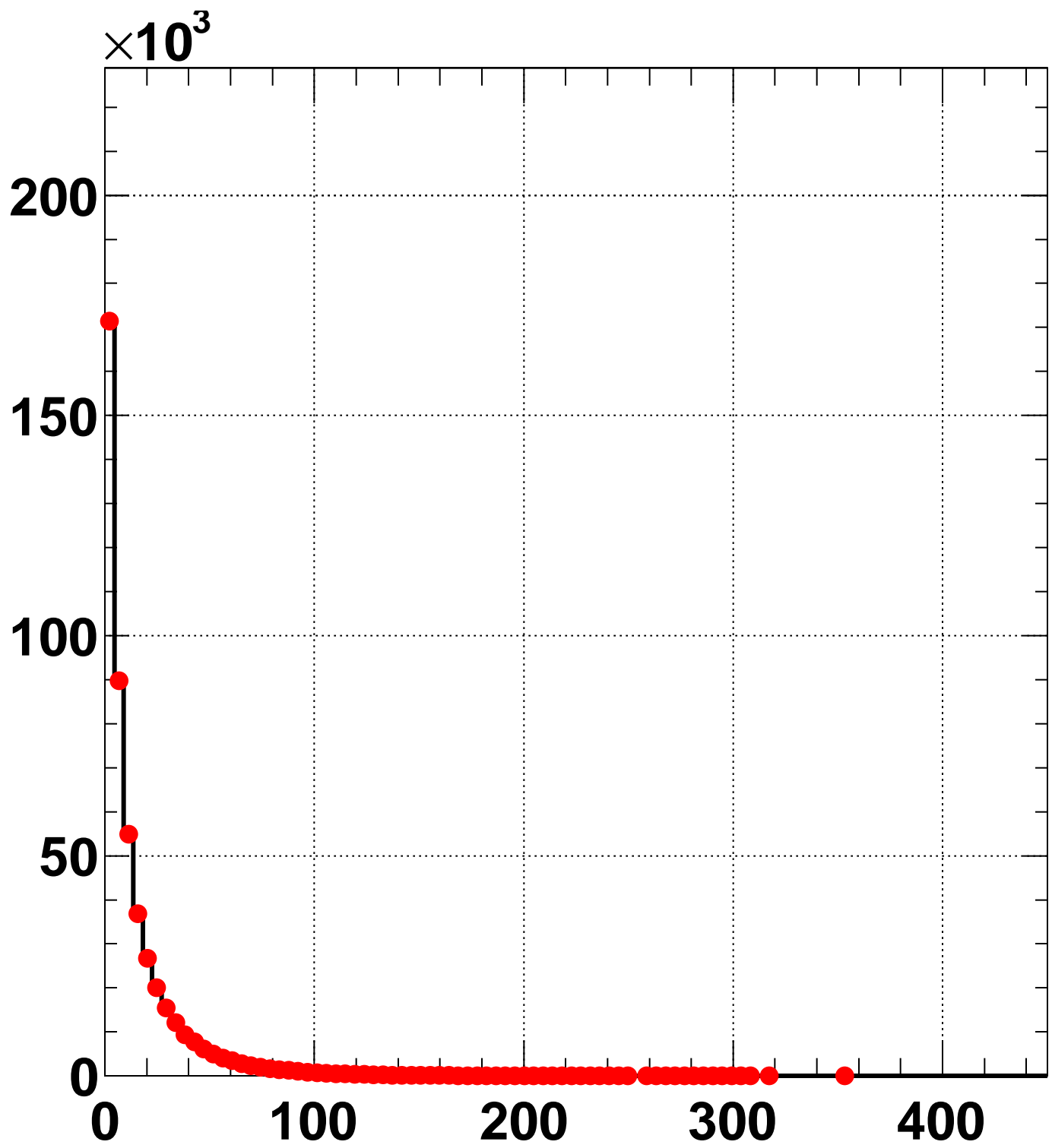
selected Q2 for DIS events



selected Q2 for DIS CC events

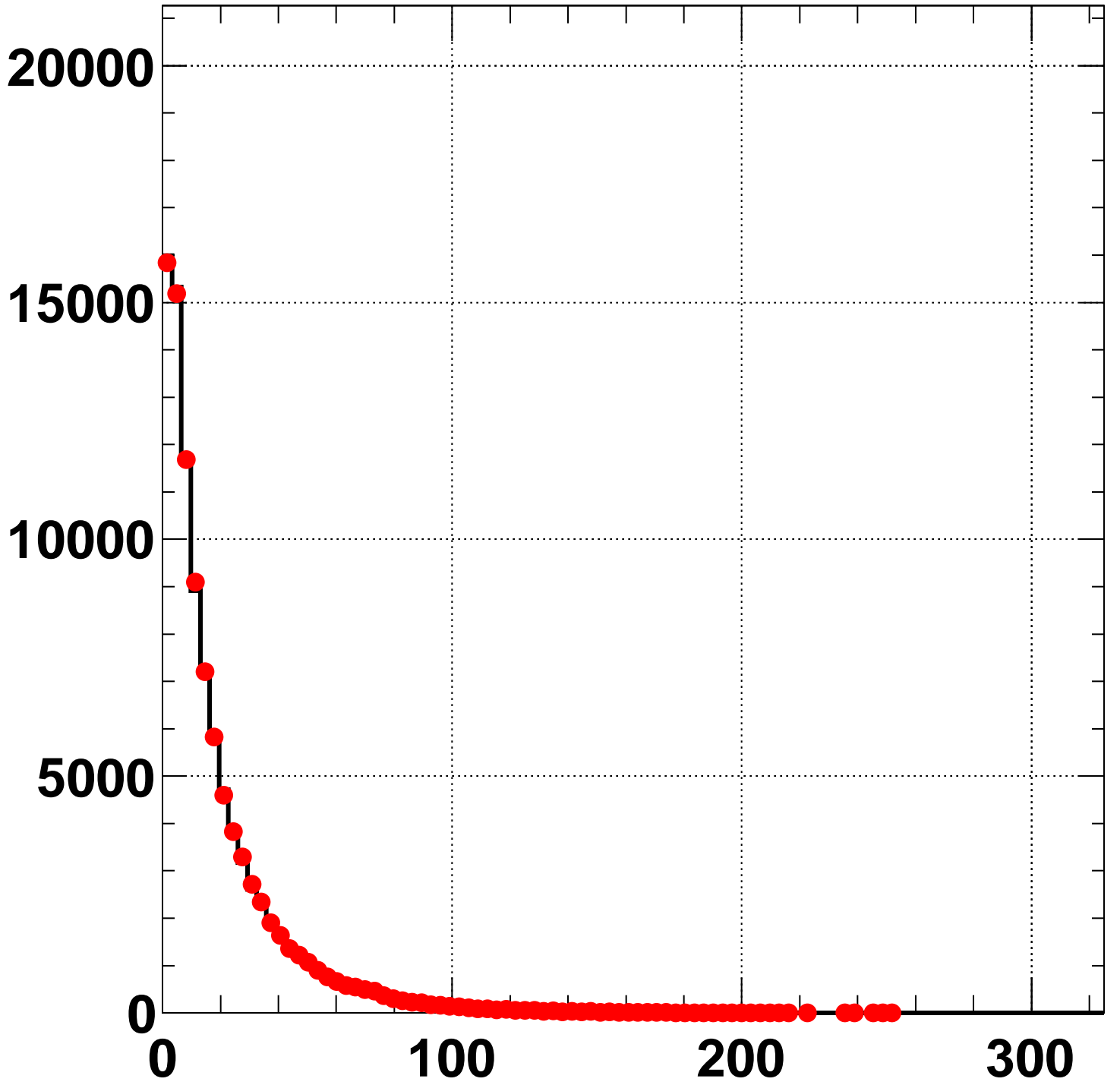


selected Q2 for DIS NC events



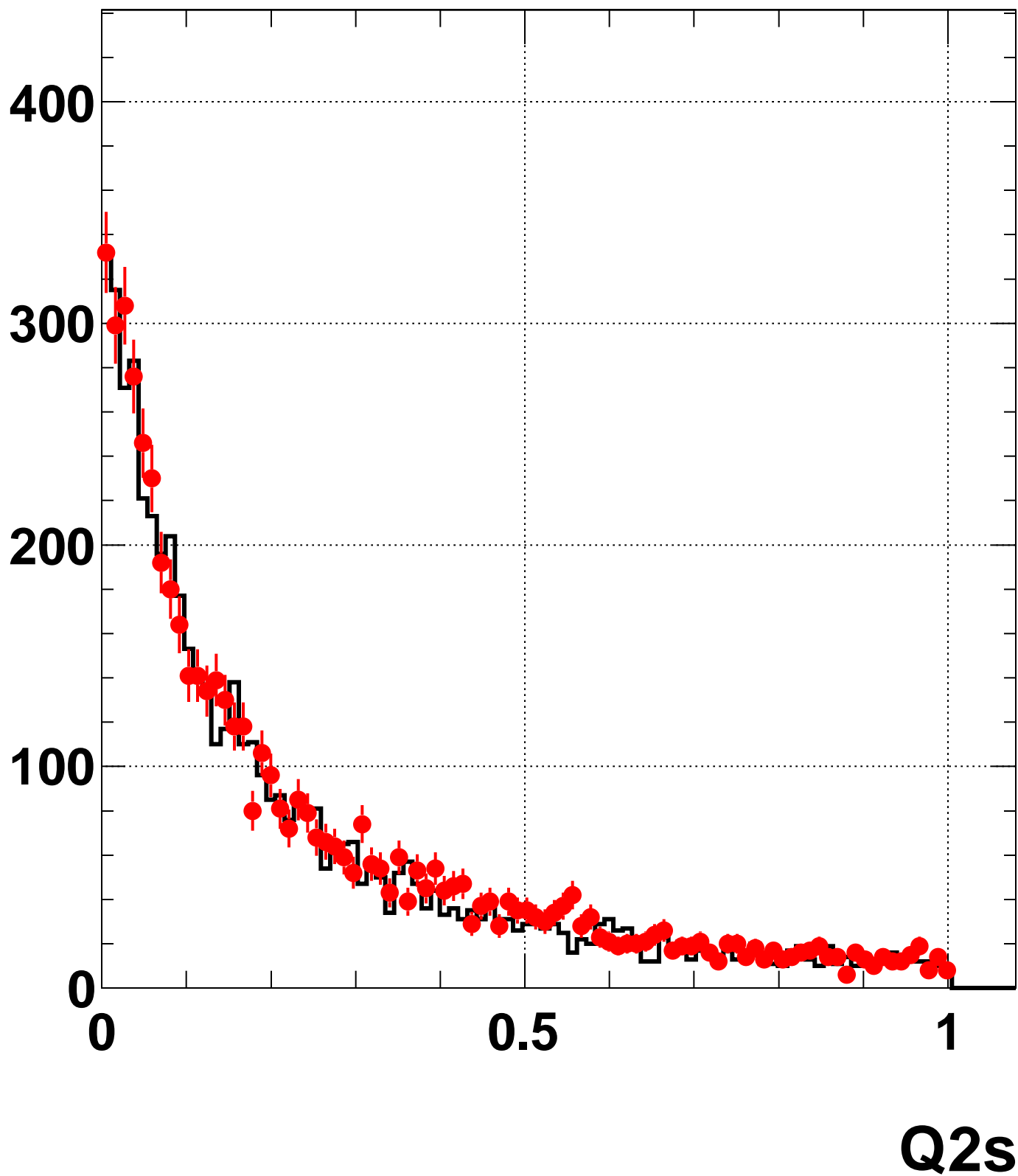
Q_2s

selected Q2 for Charm/DIS events

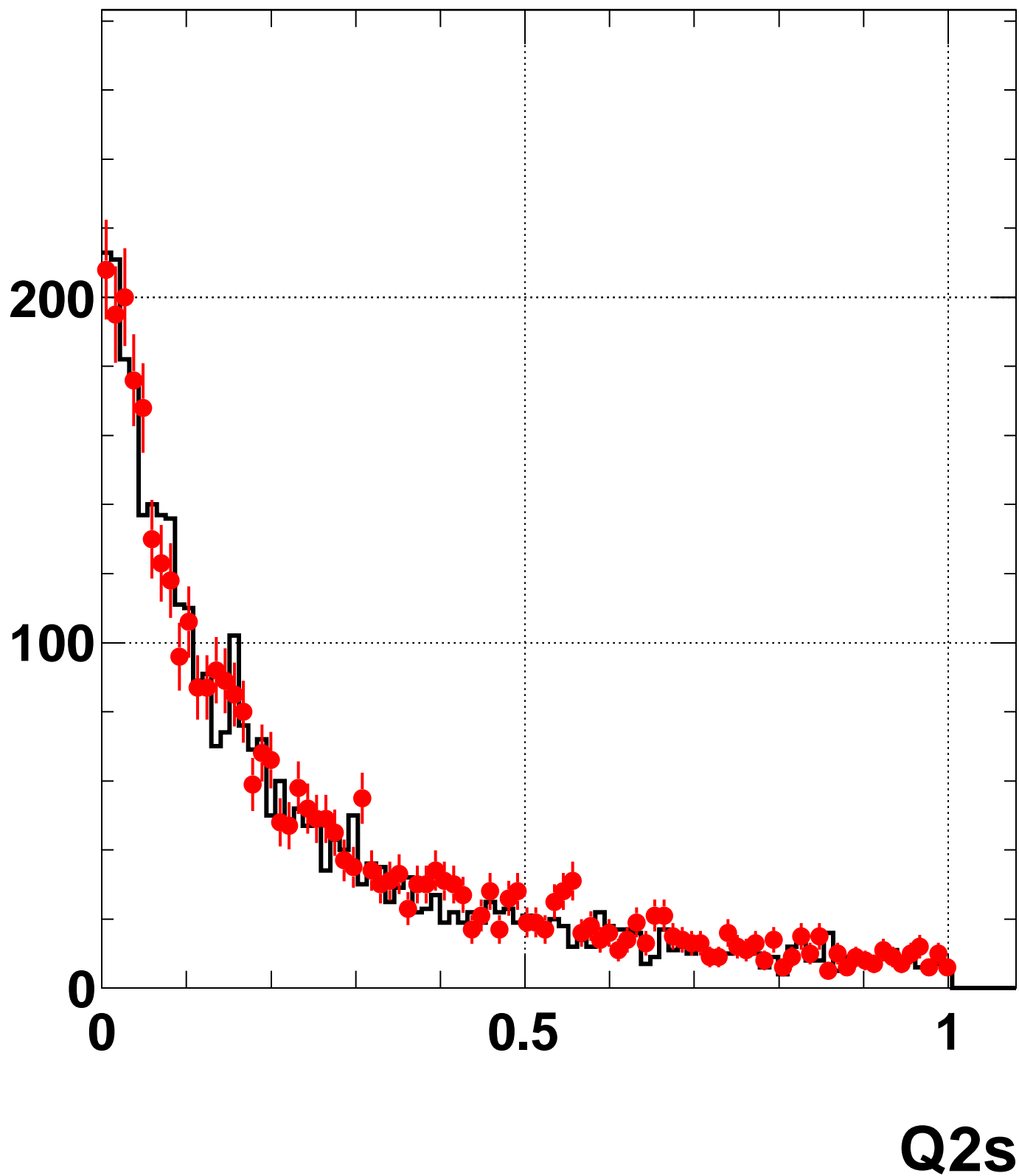


Q2s

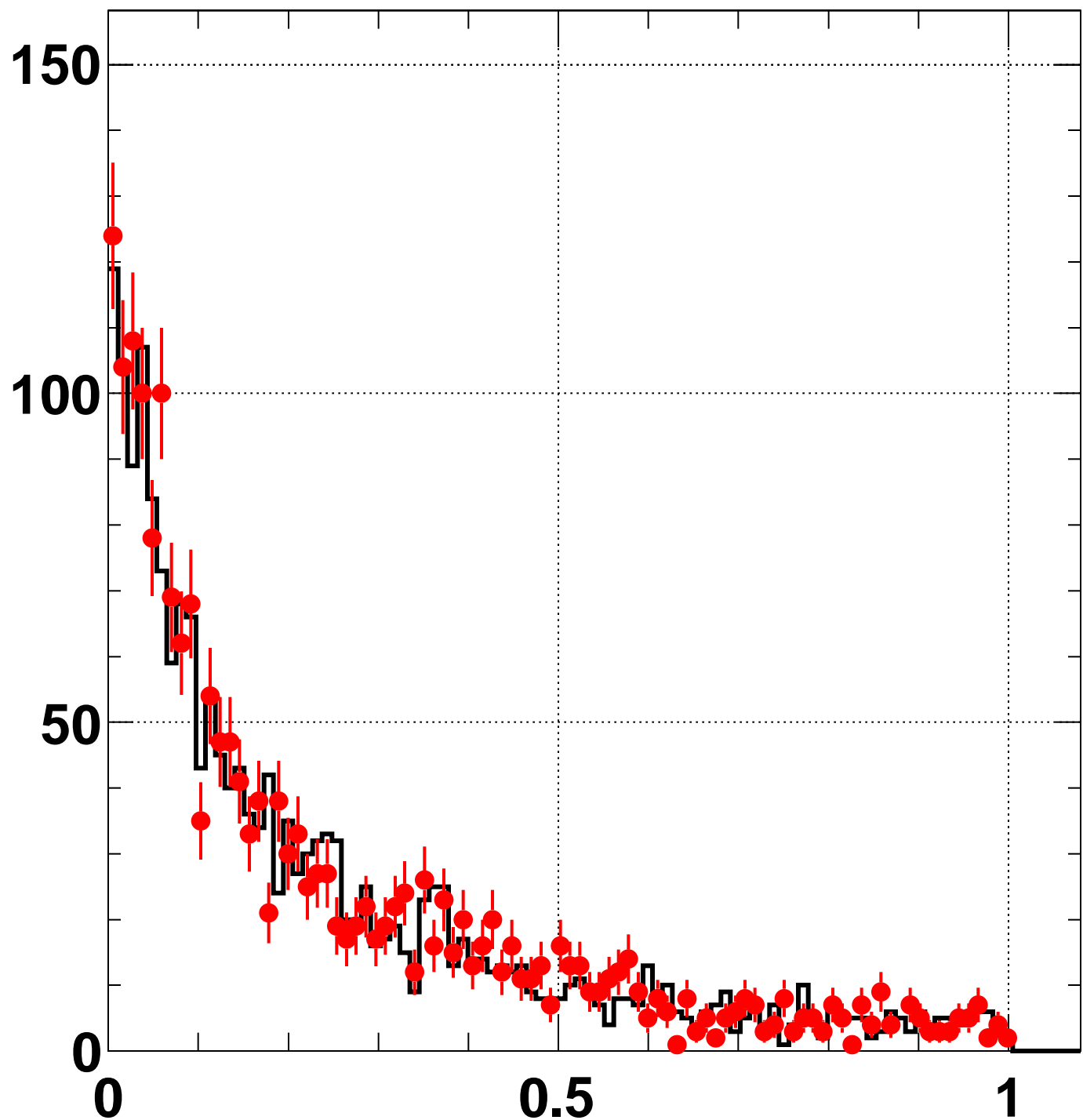
selected Q2 for COH events



selected Q2 for COH CC events

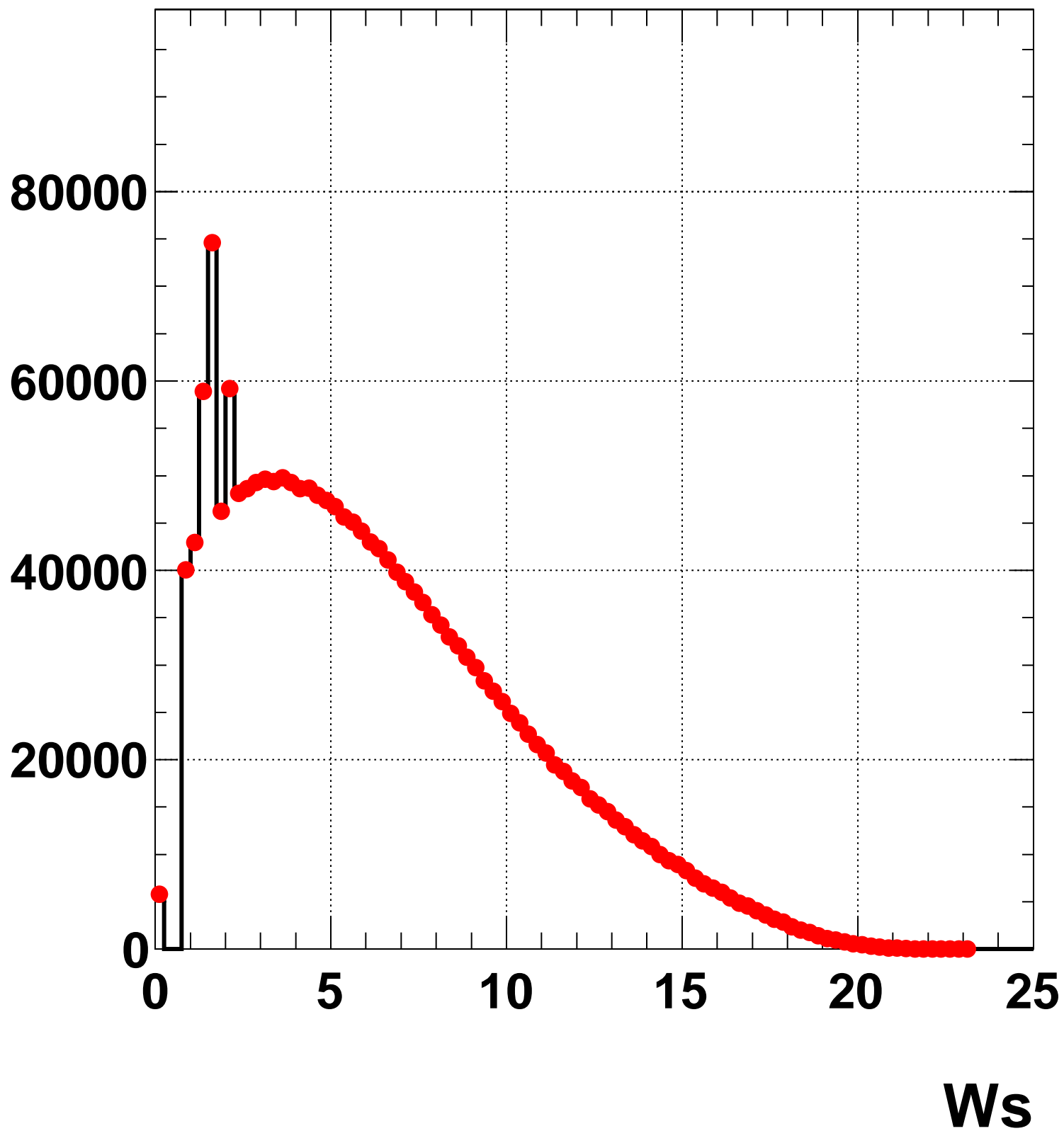


selected Q2 for COH NC events

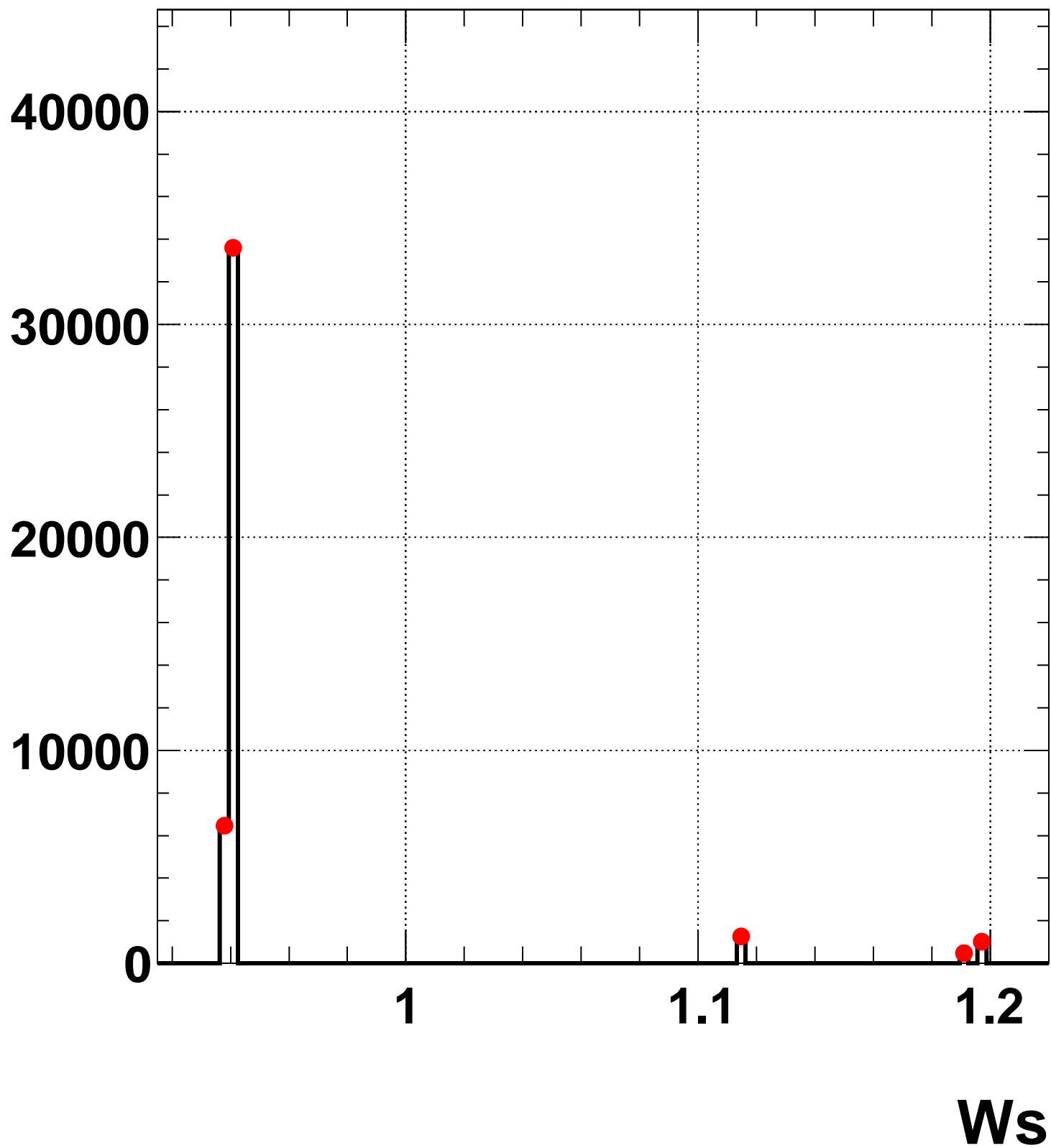


Q_2s

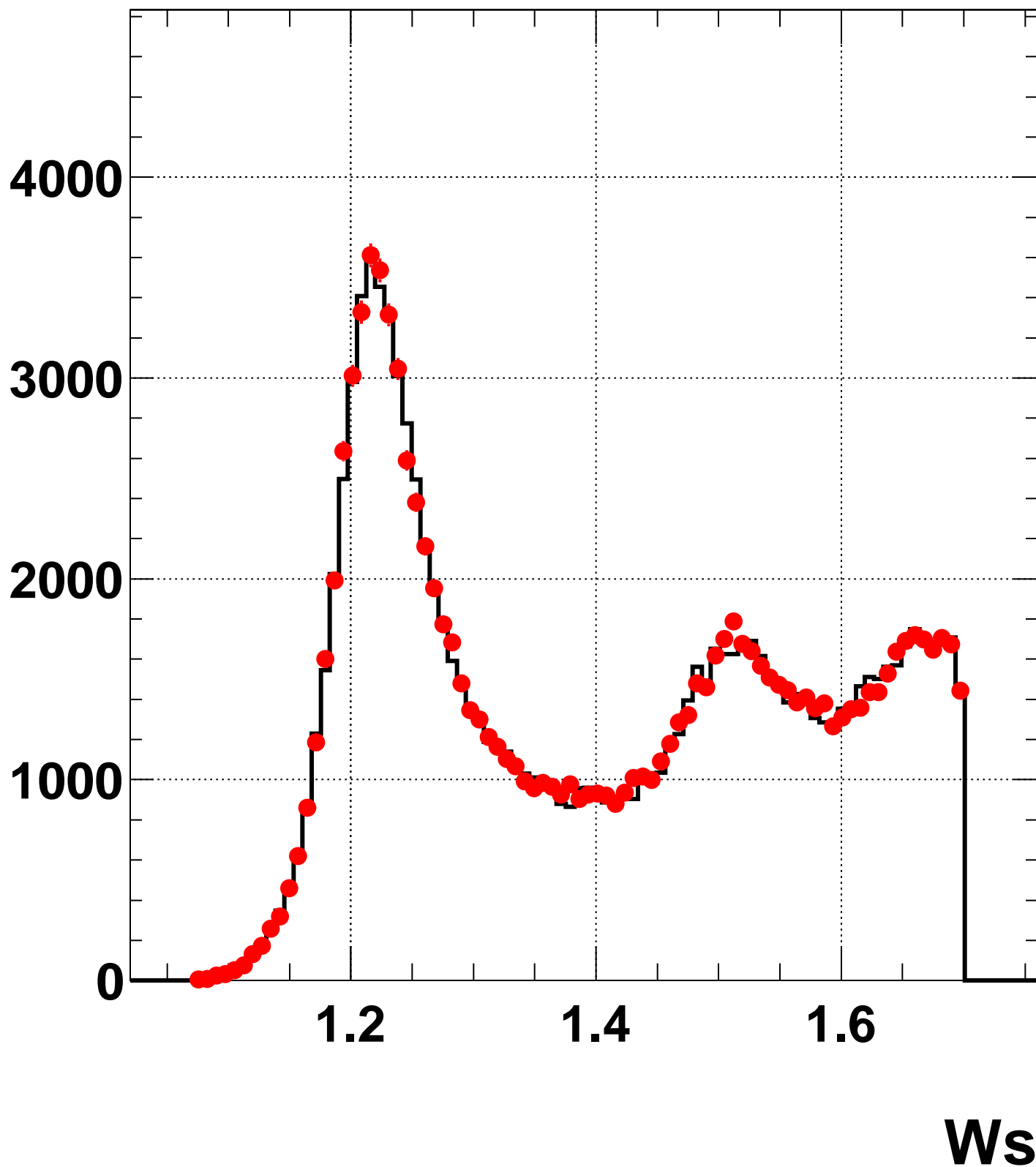
selected W for all events



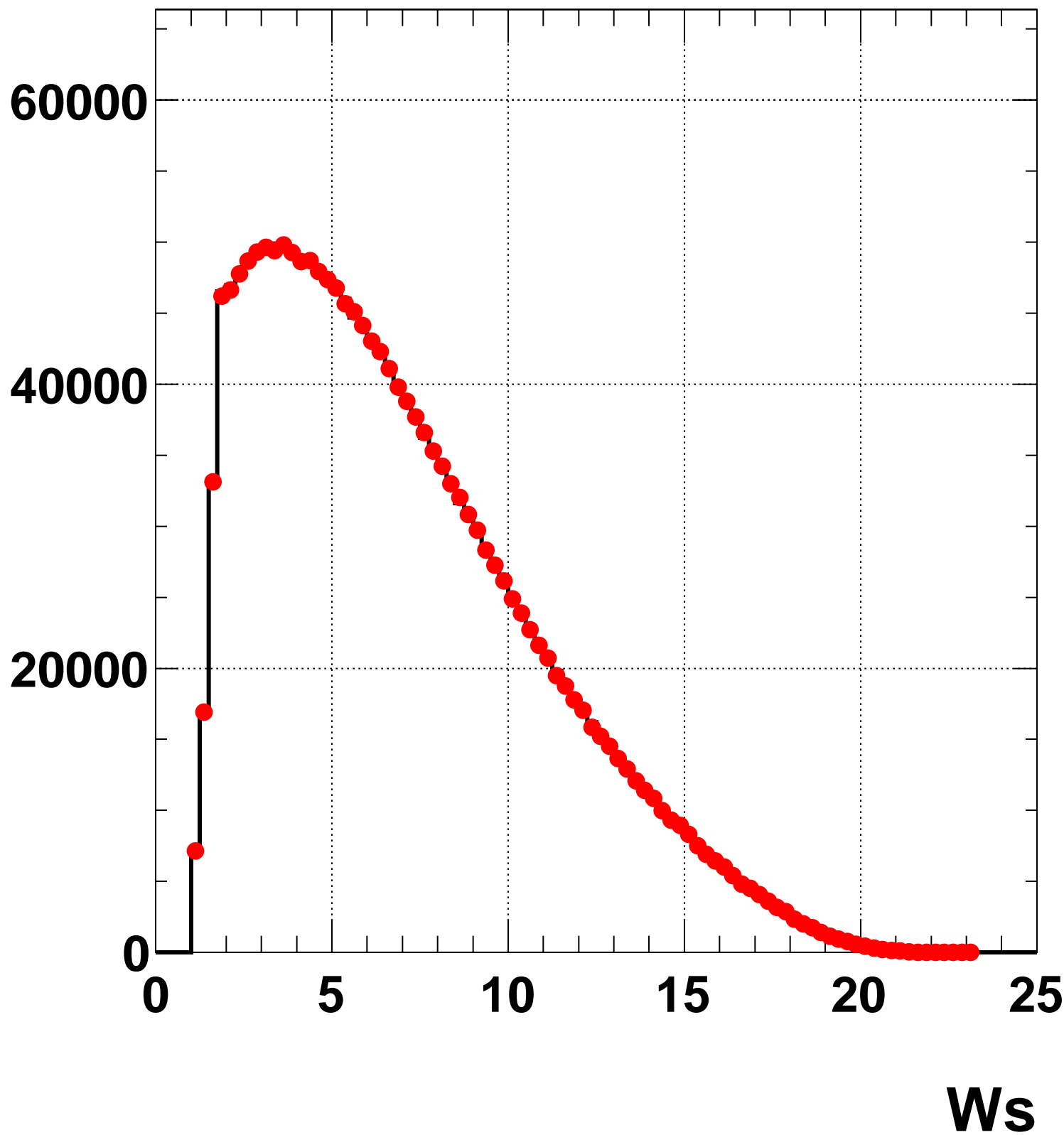
selected W for QEL events



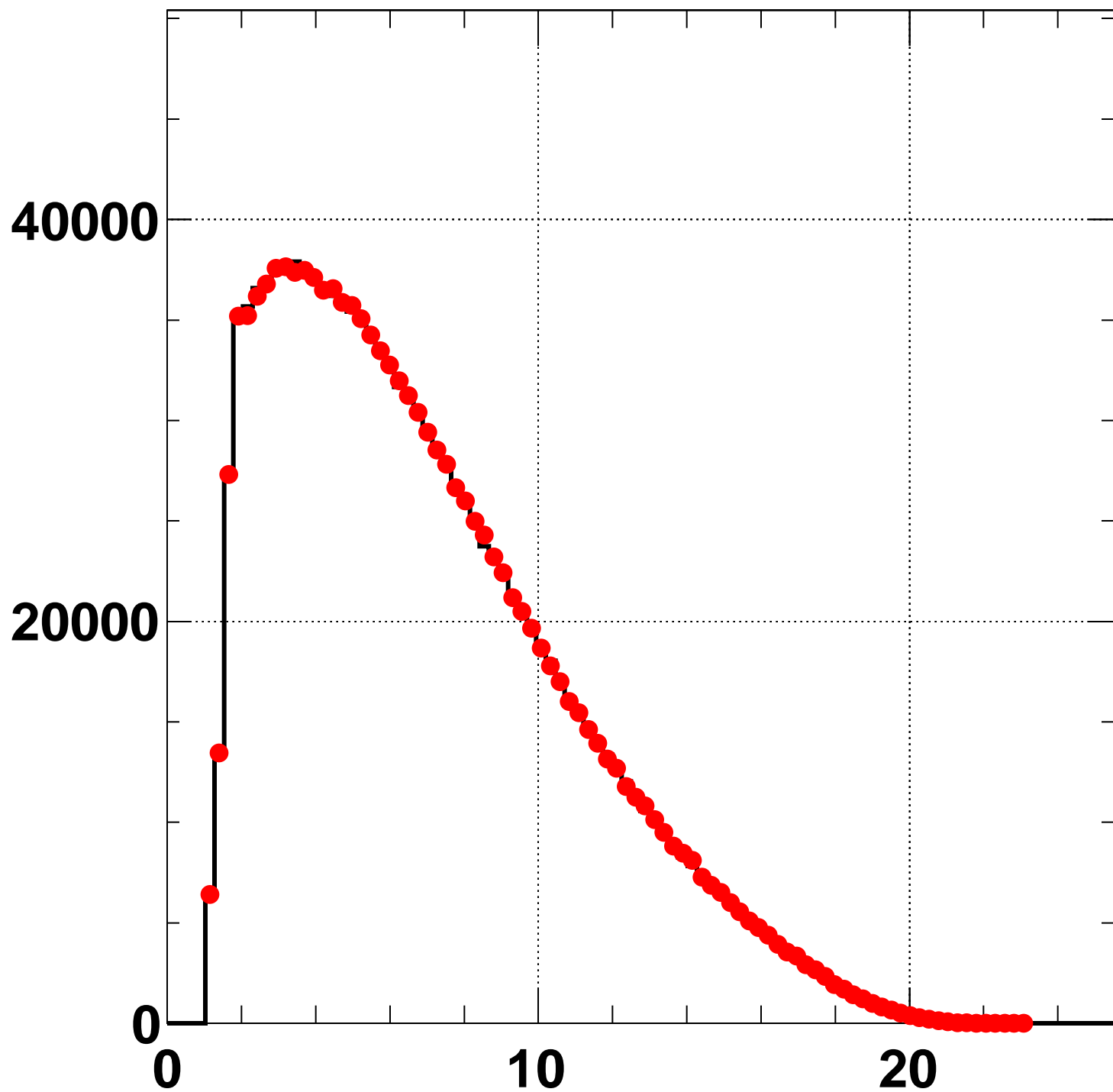
selected W for RES events



selected W for DIS events

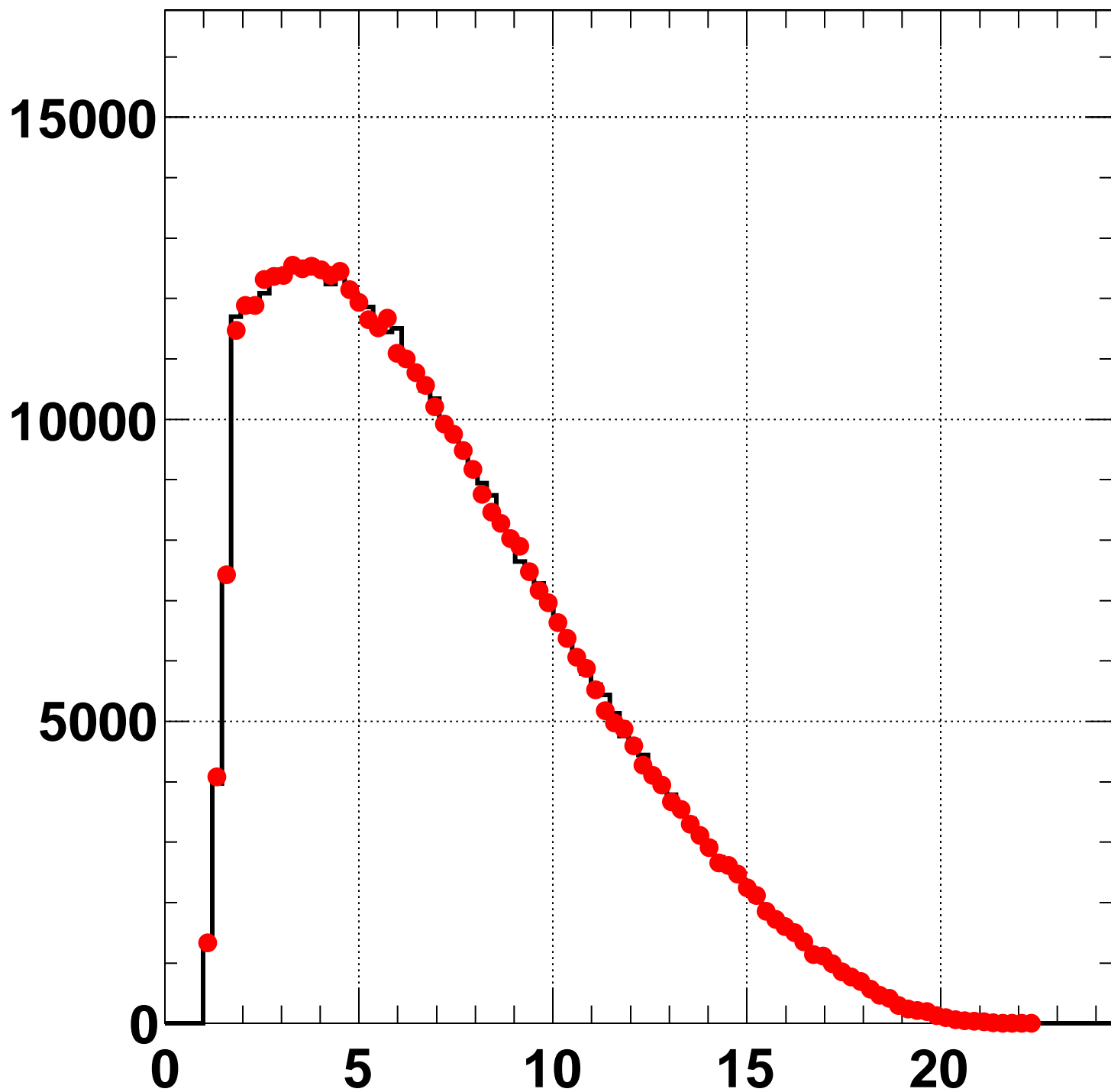


selected W for DIS CC events



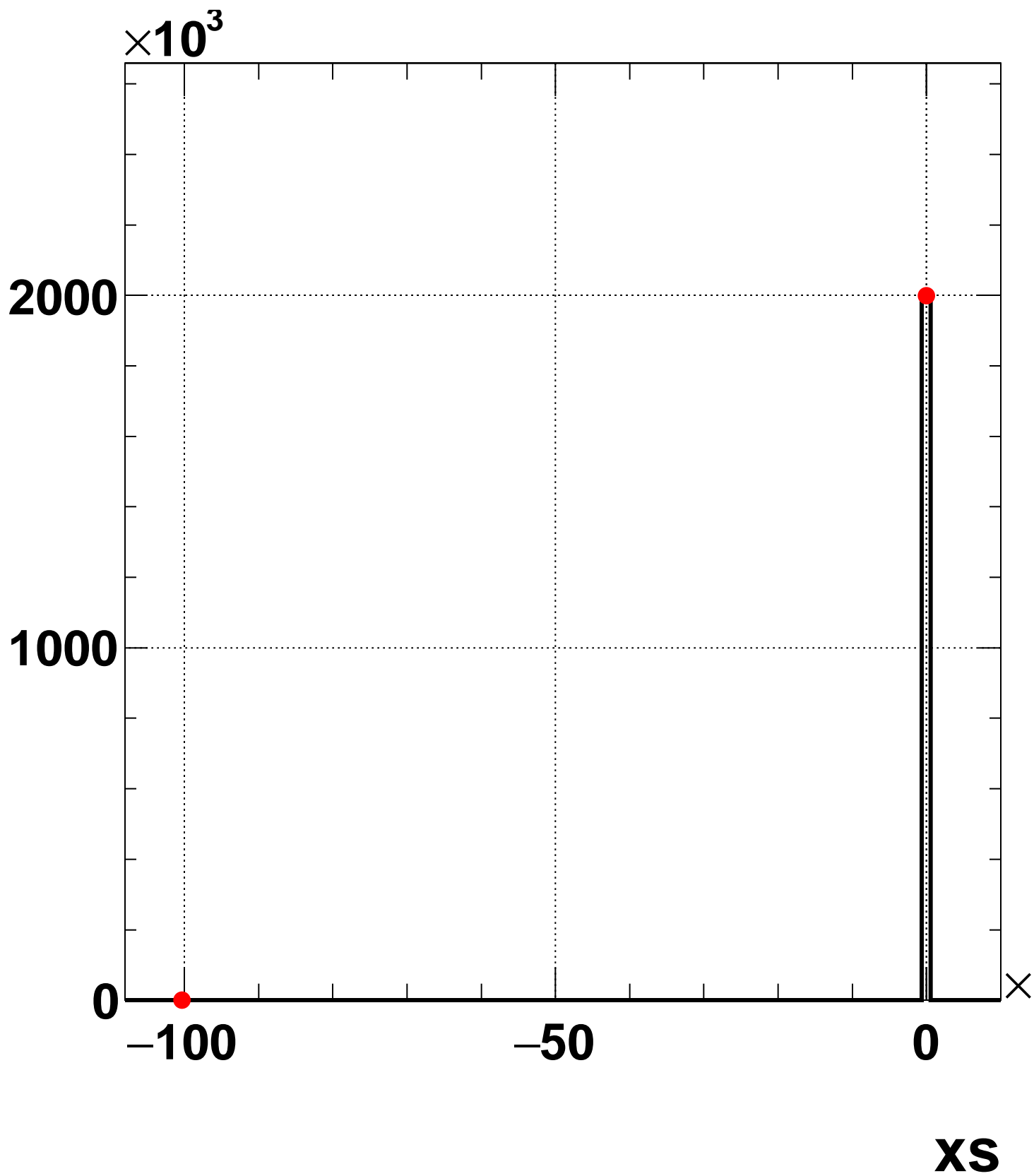
W_s

selected W for DIS NC events

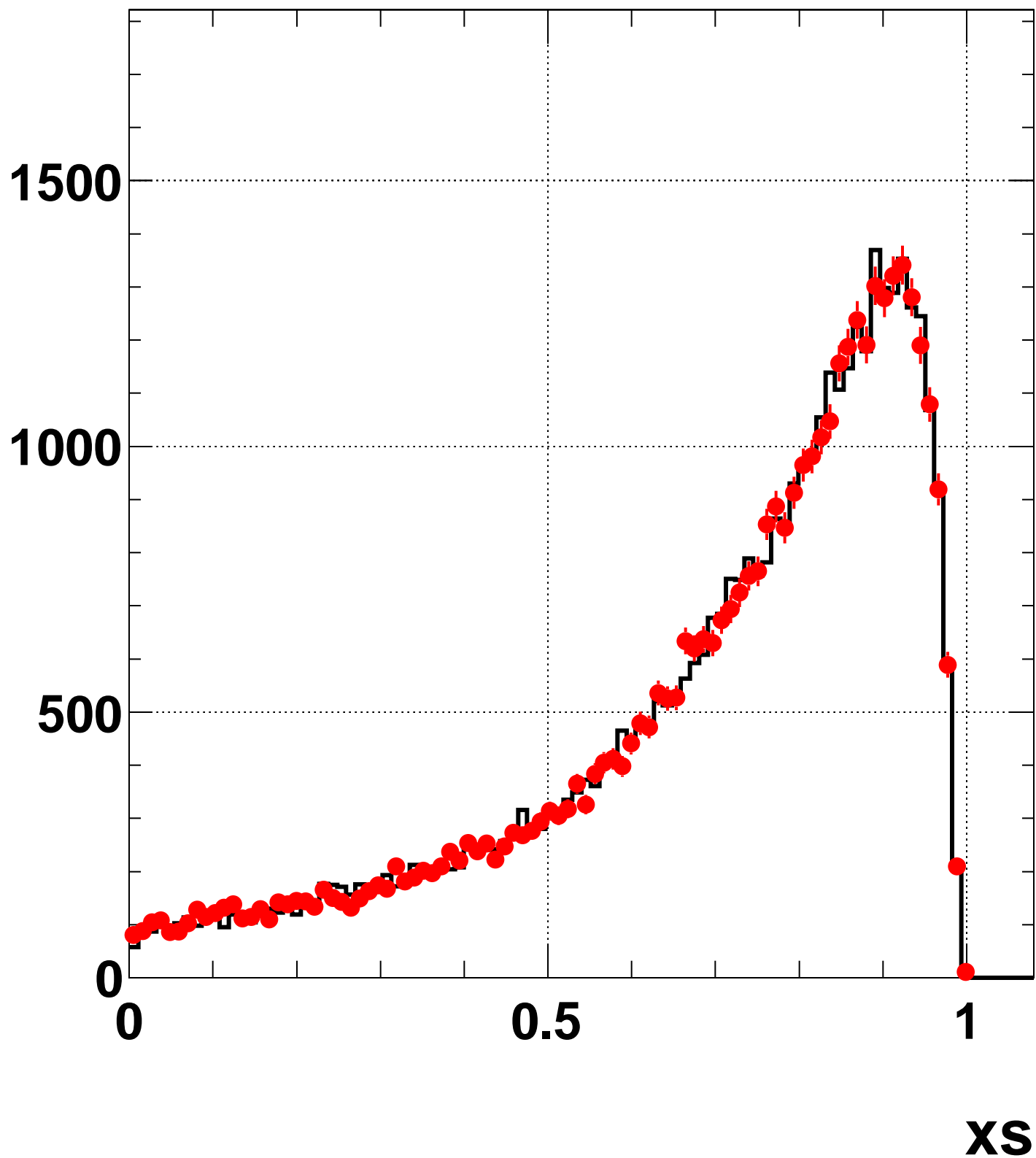


W_s

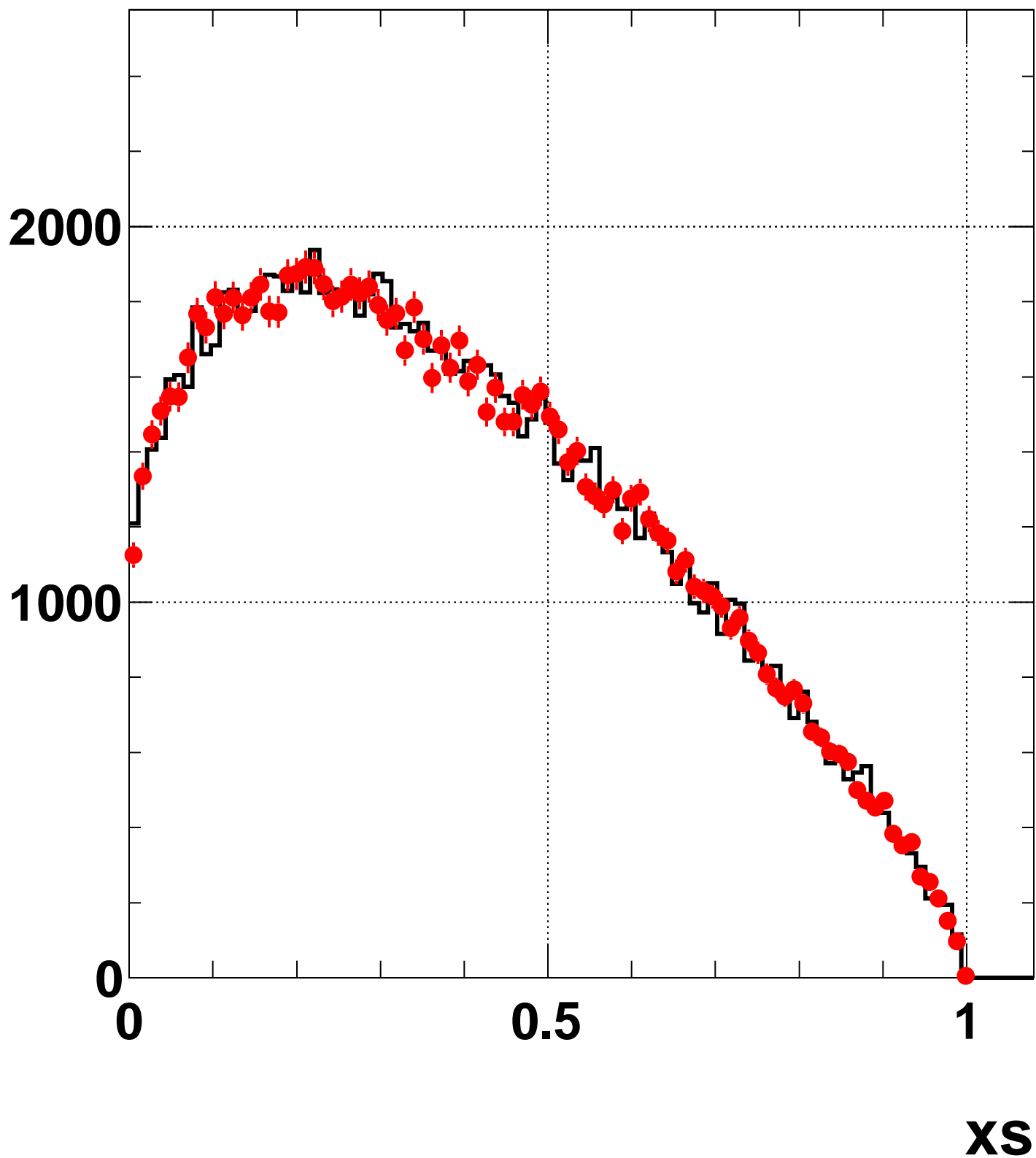
selected x for all events



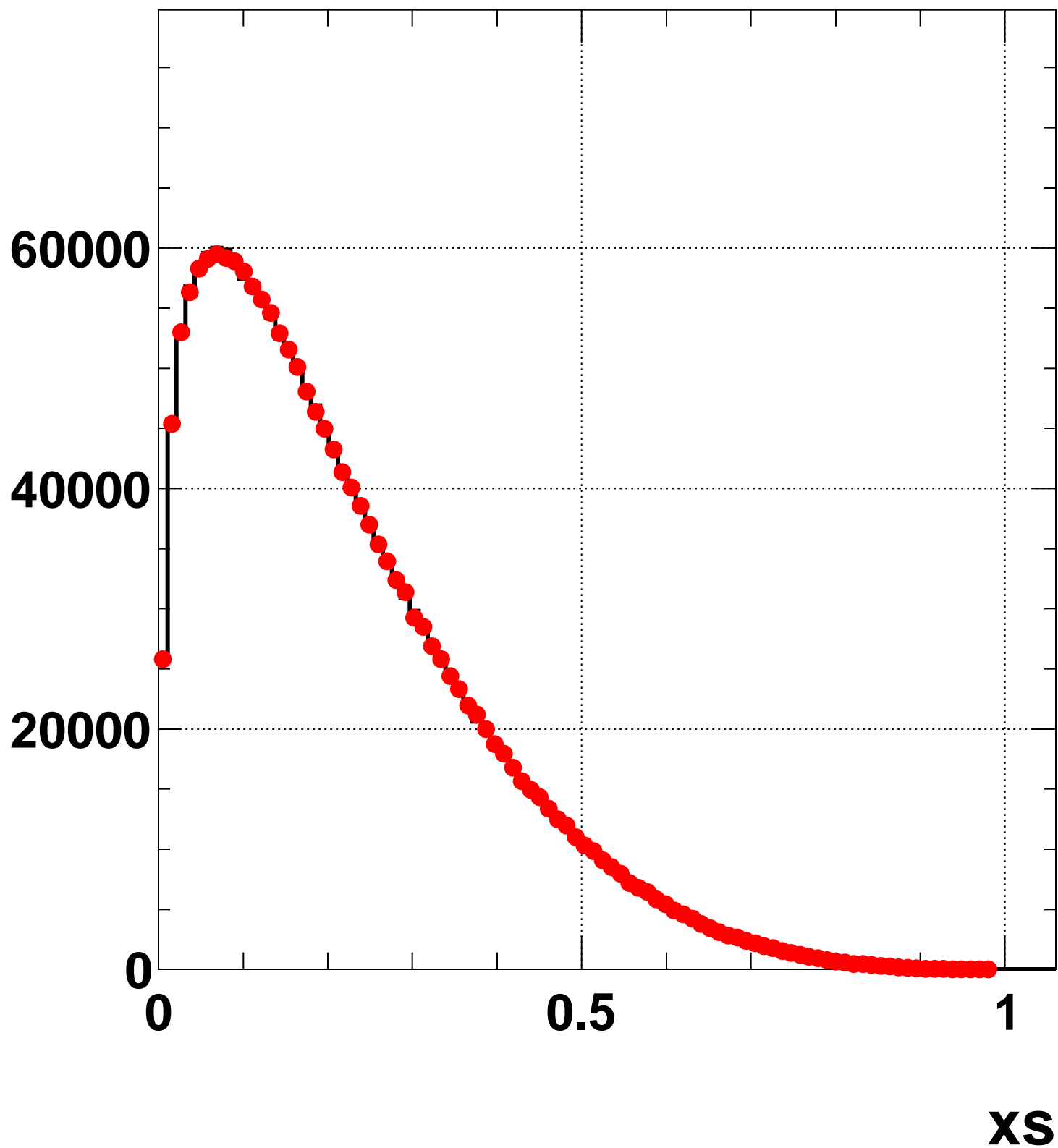
selected x for QEL events



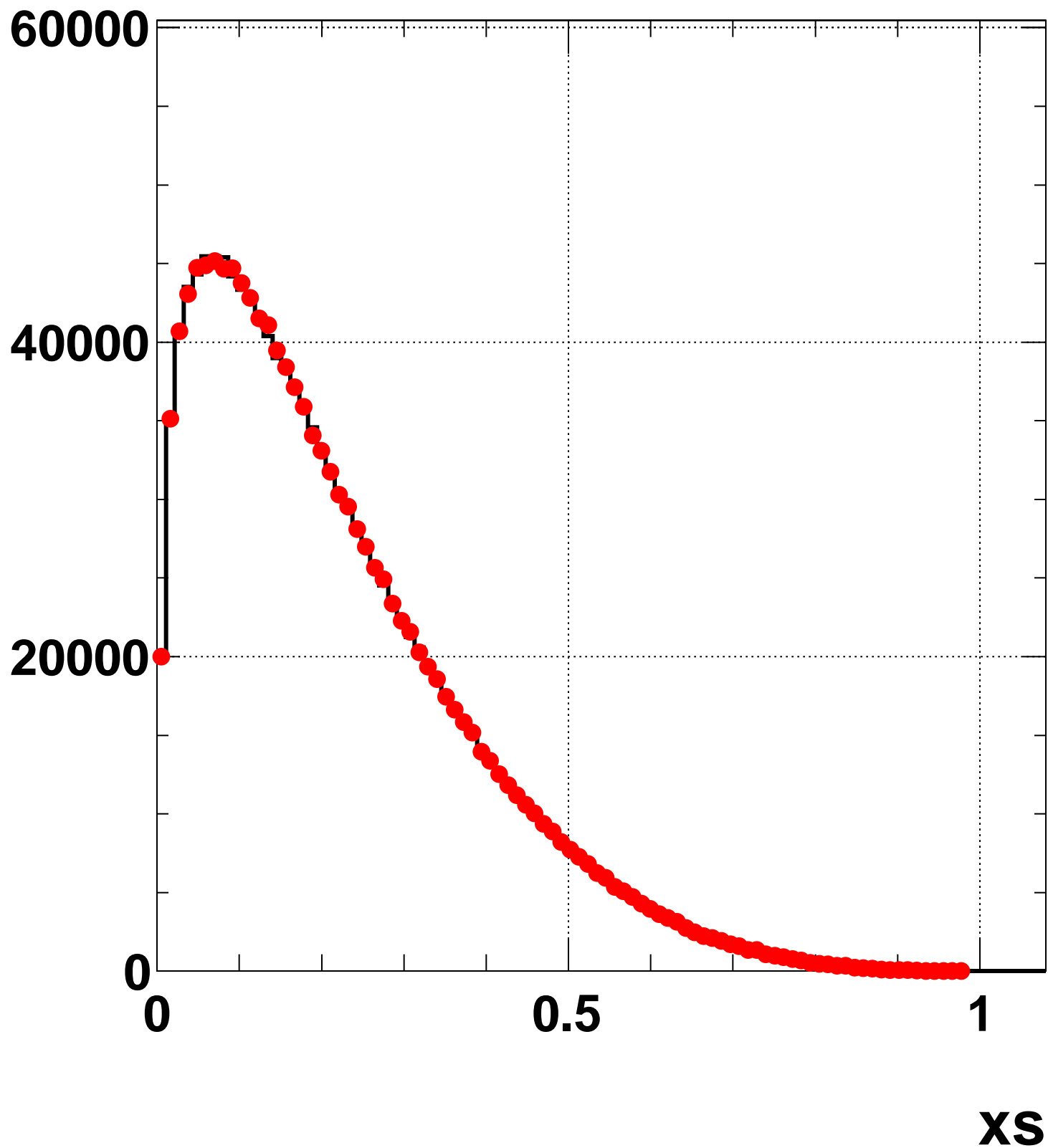
selected x for RES events



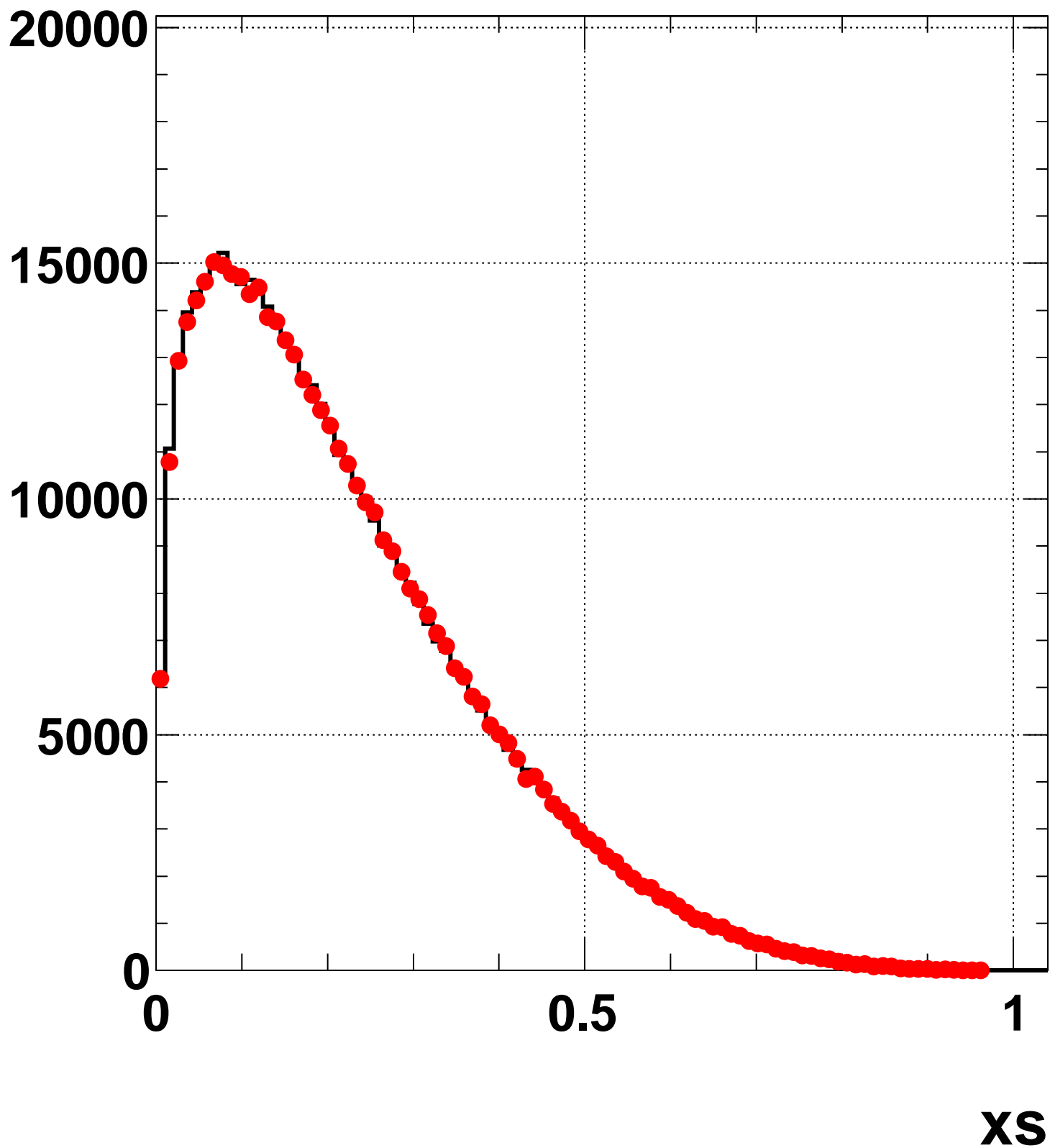
selected x for DIS events



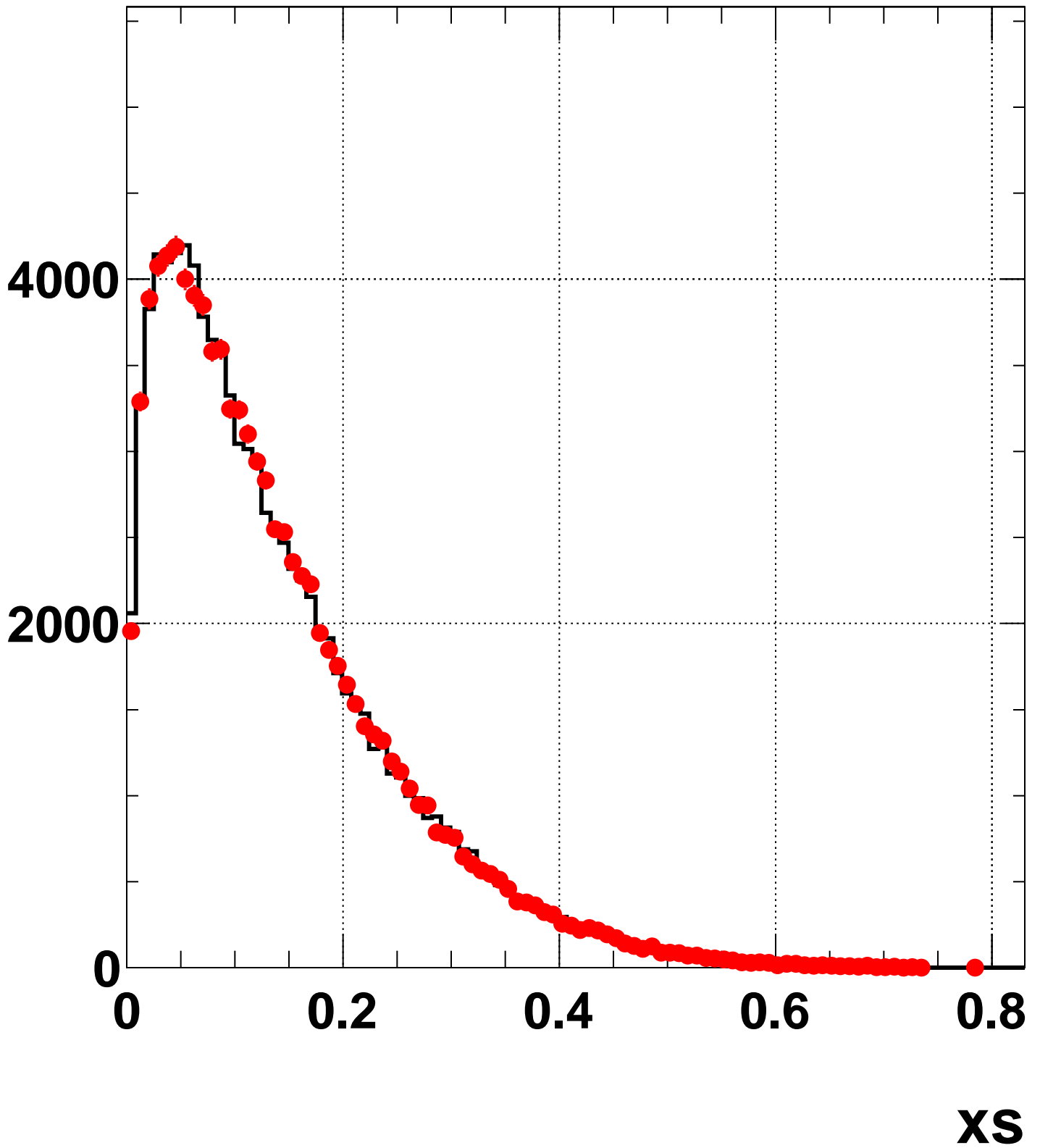
selected x for DIS CC events



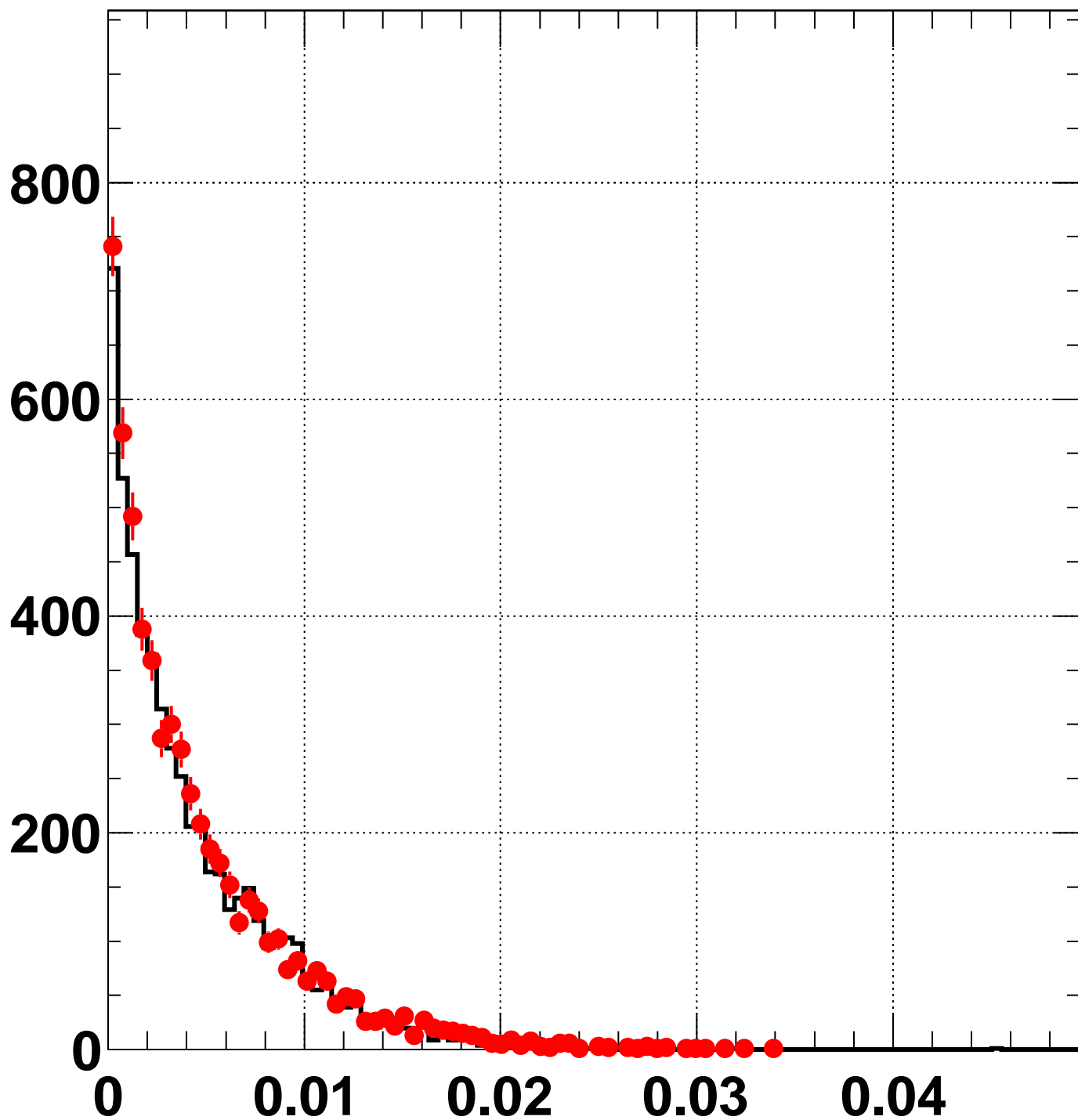
selected x for DIS NC events



selected x for Charm/DIS events

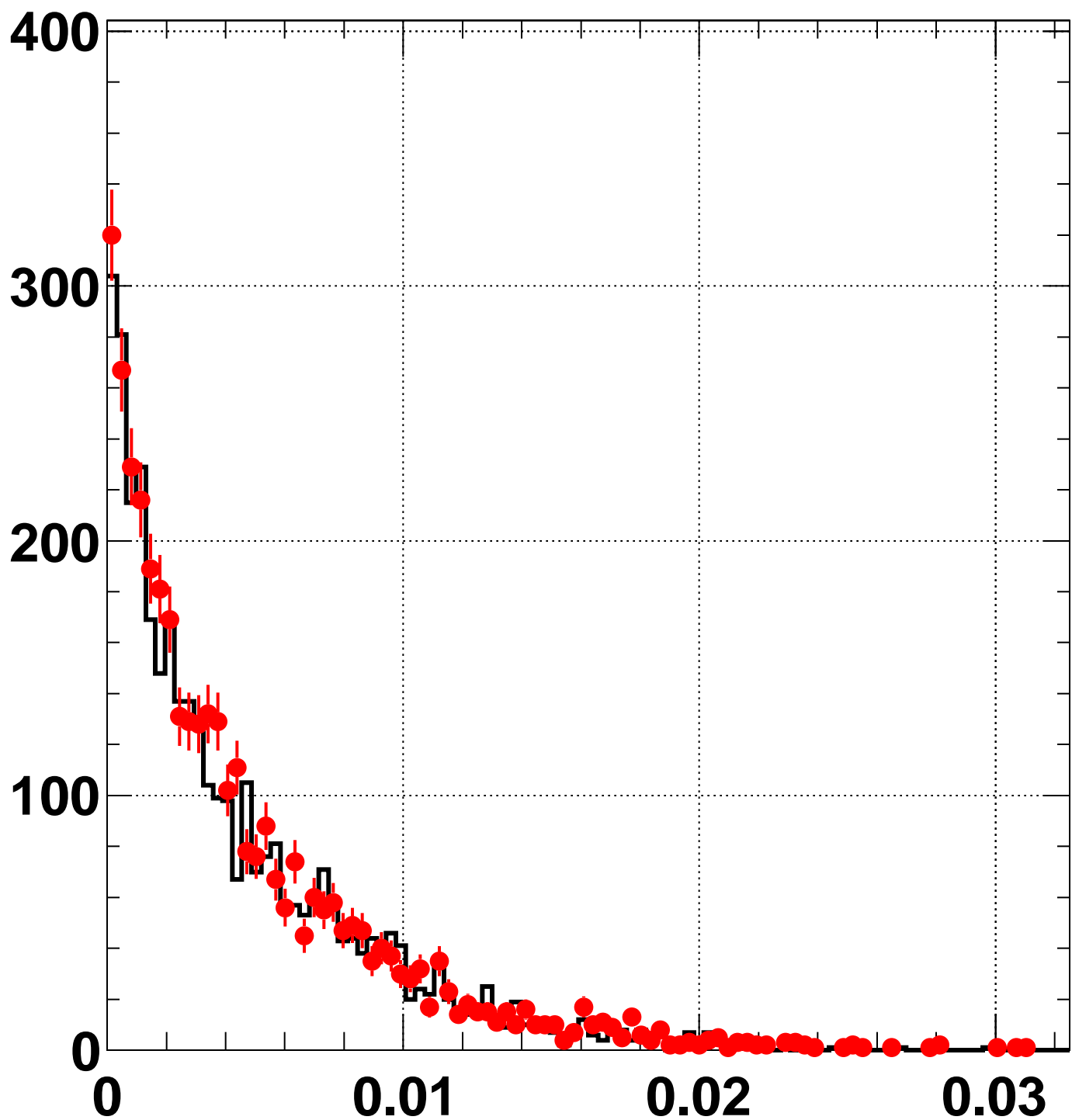


selected x for COH events



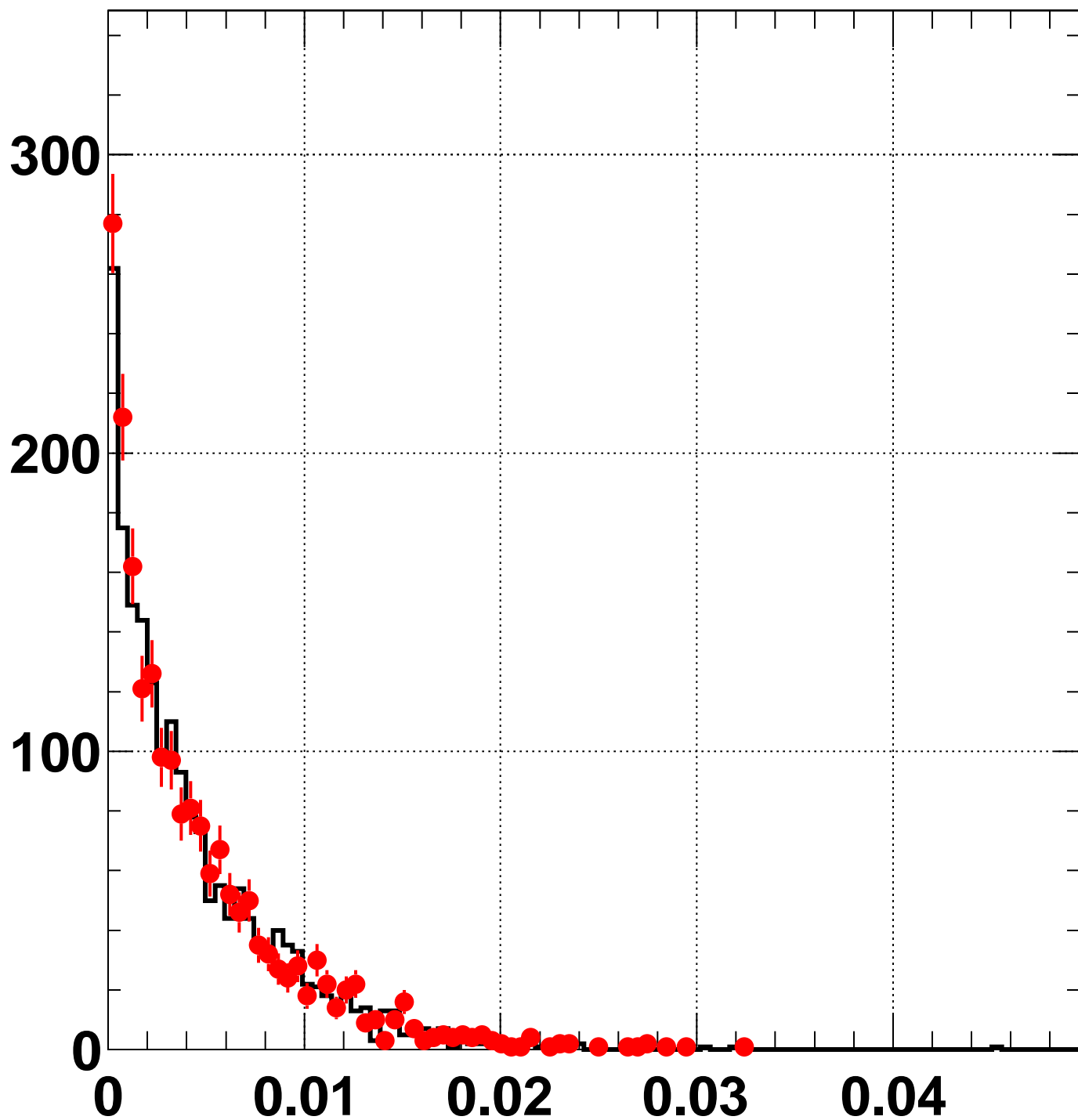
XS

selected x for COH CC events



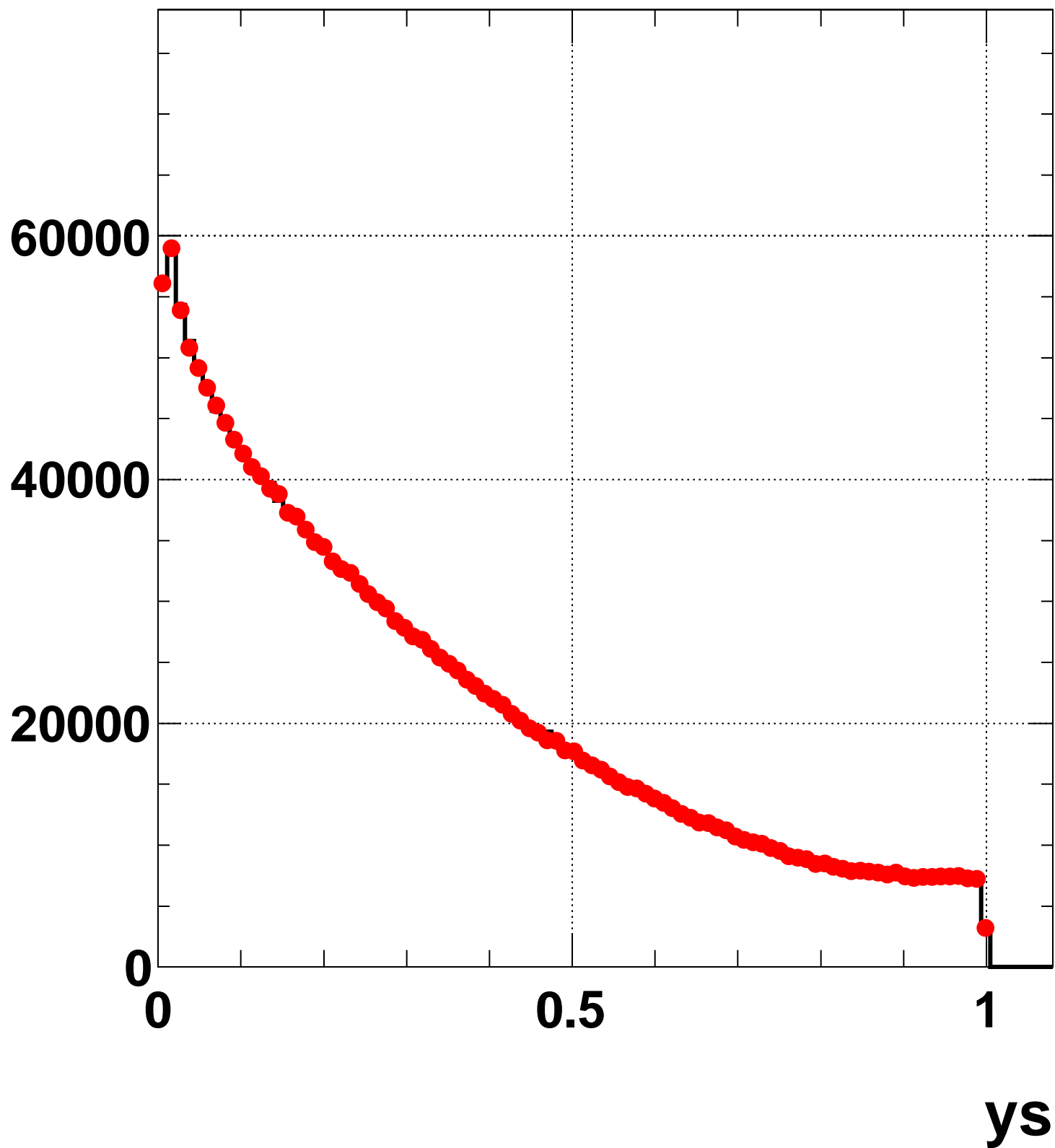
XS

selected x for COH NC events

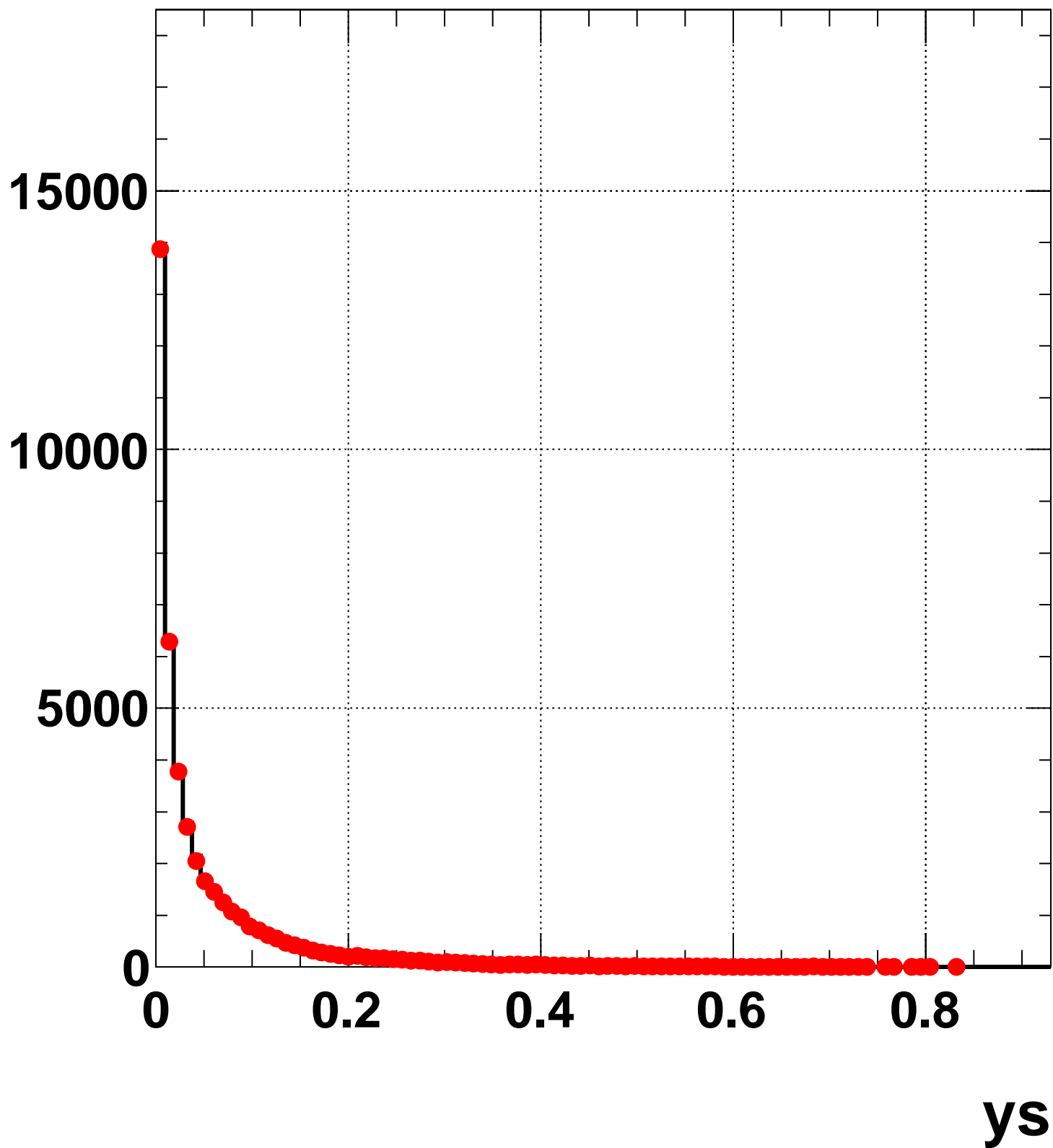


XS

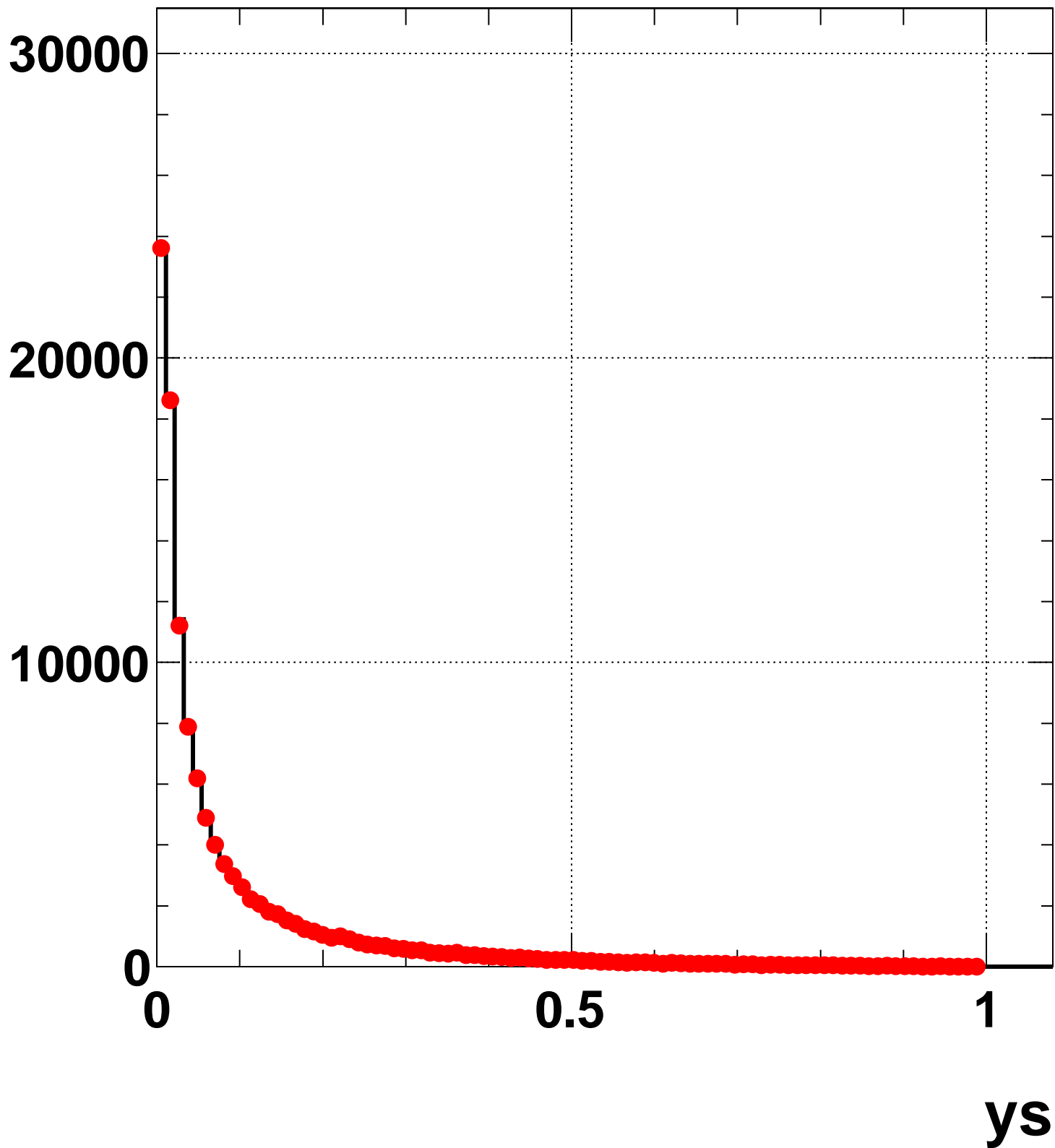
selected y for all events



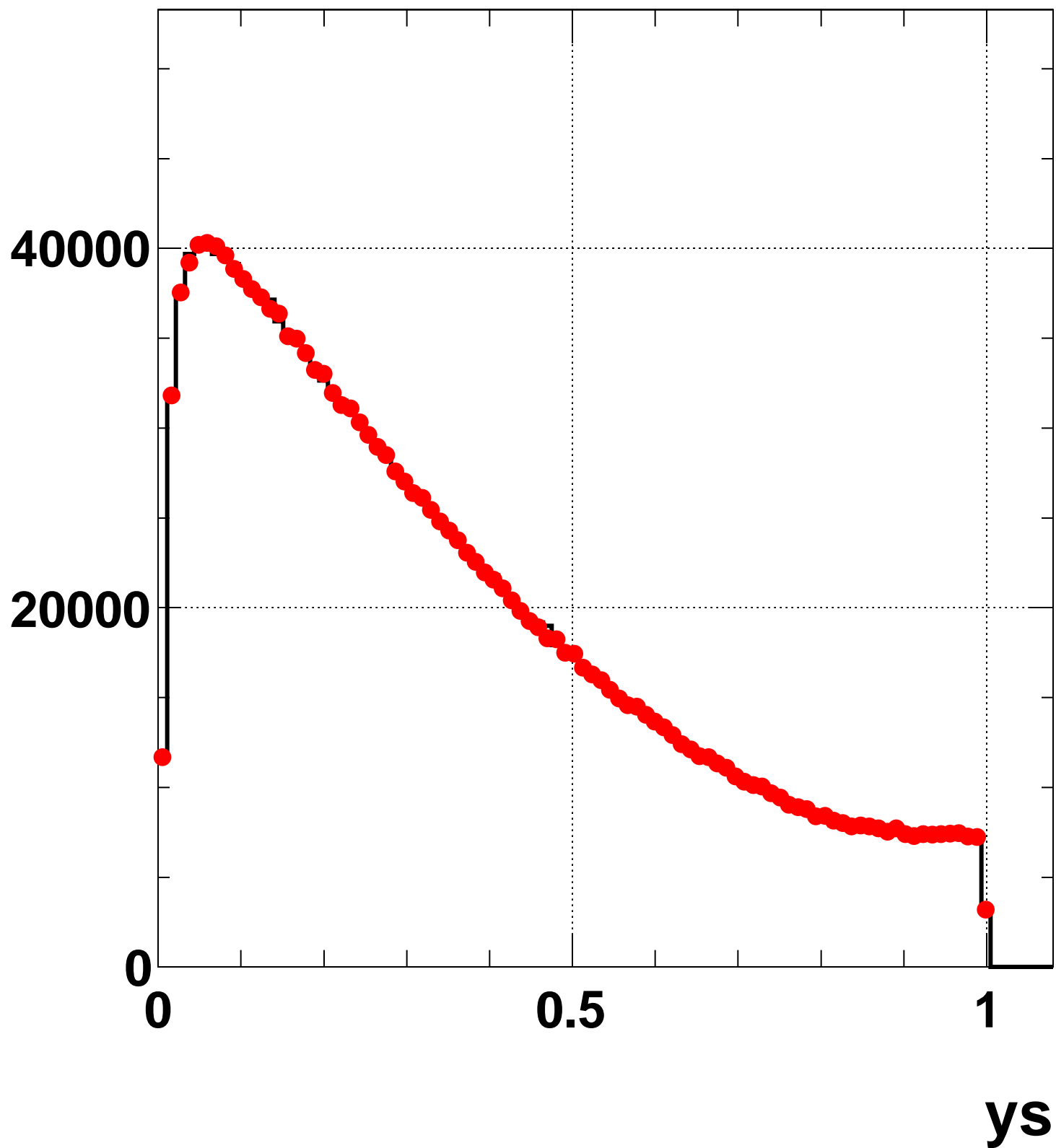
selected y for QEL events



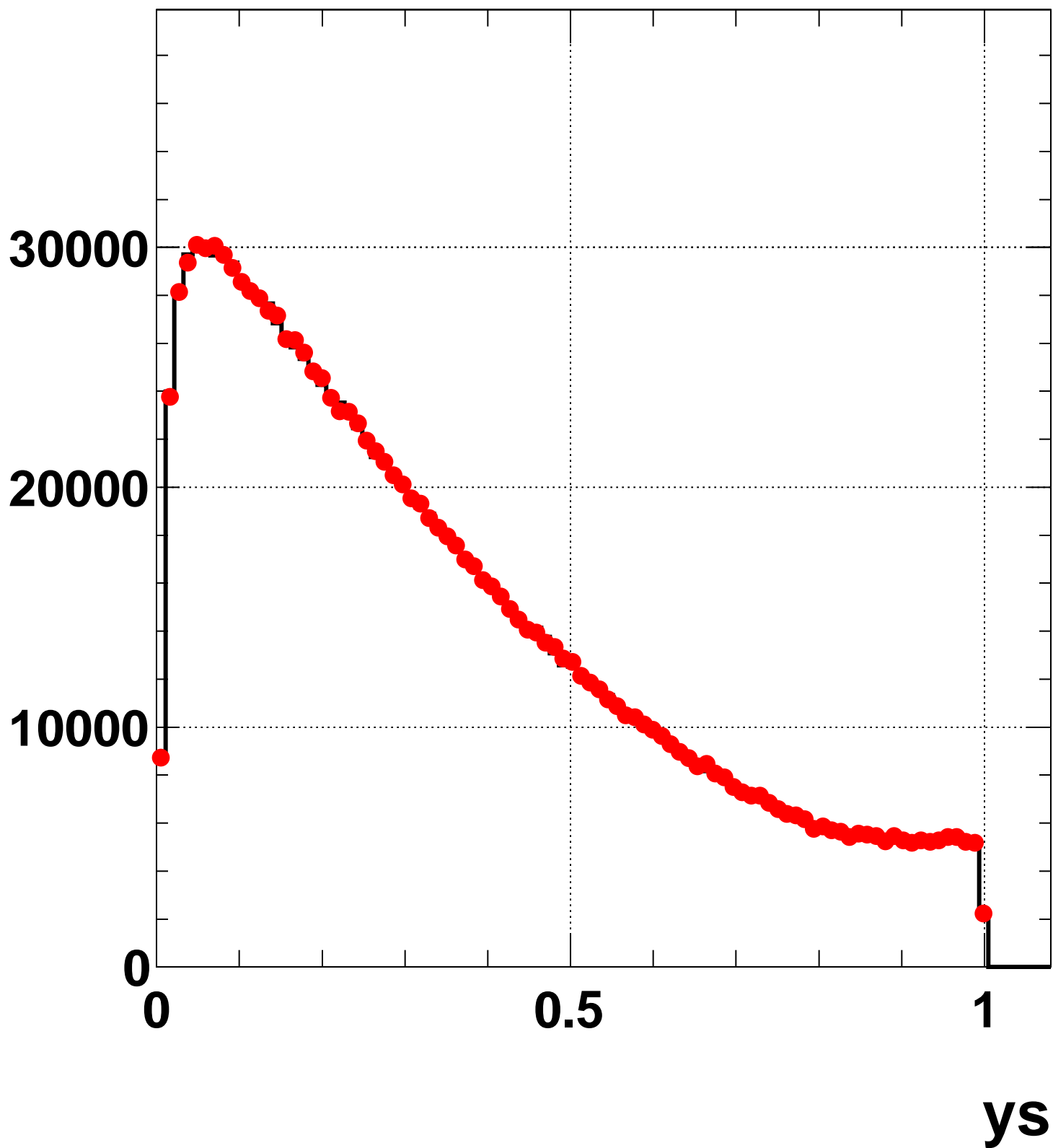
selected y for RES events



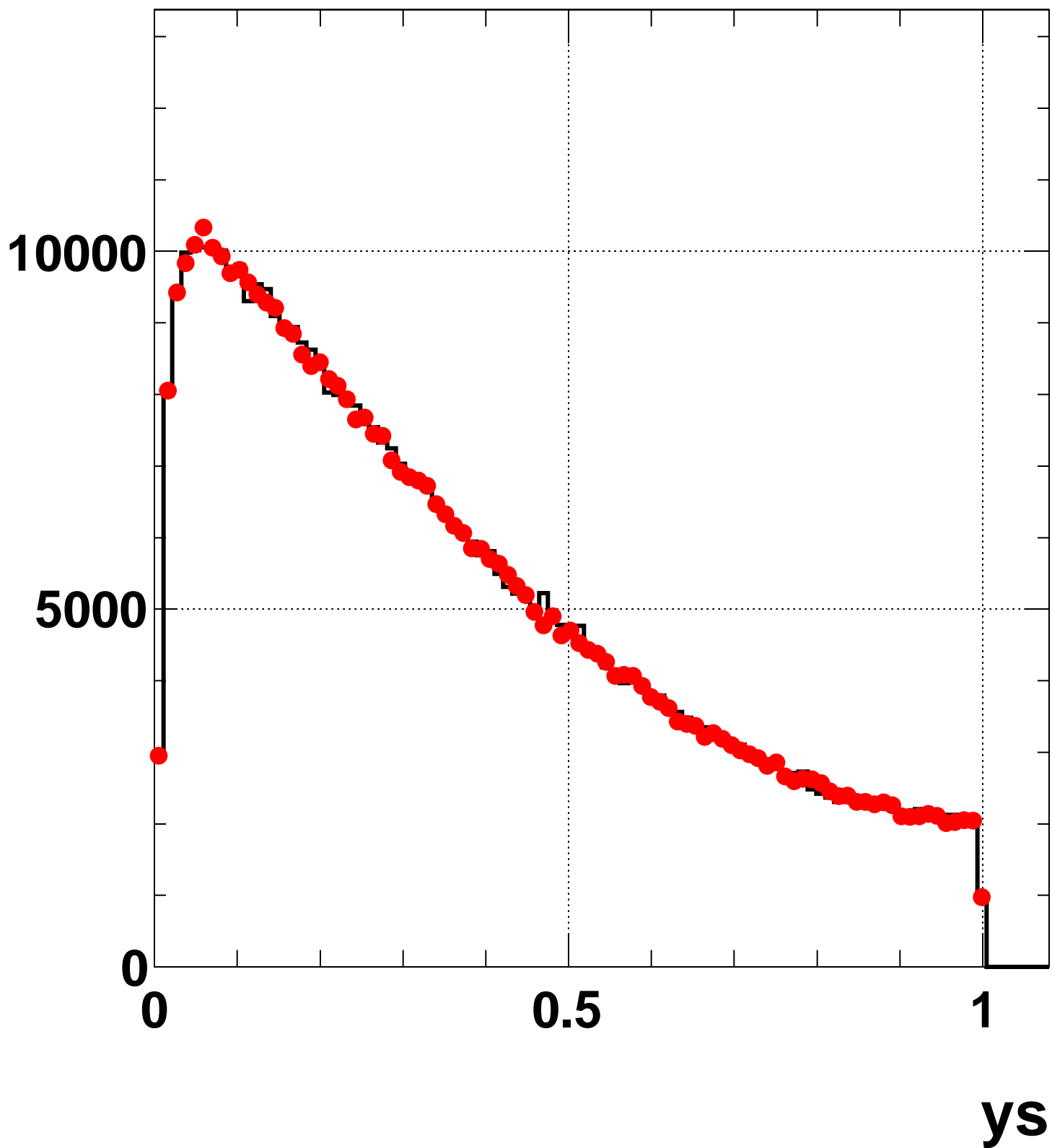
selected y for DIS events



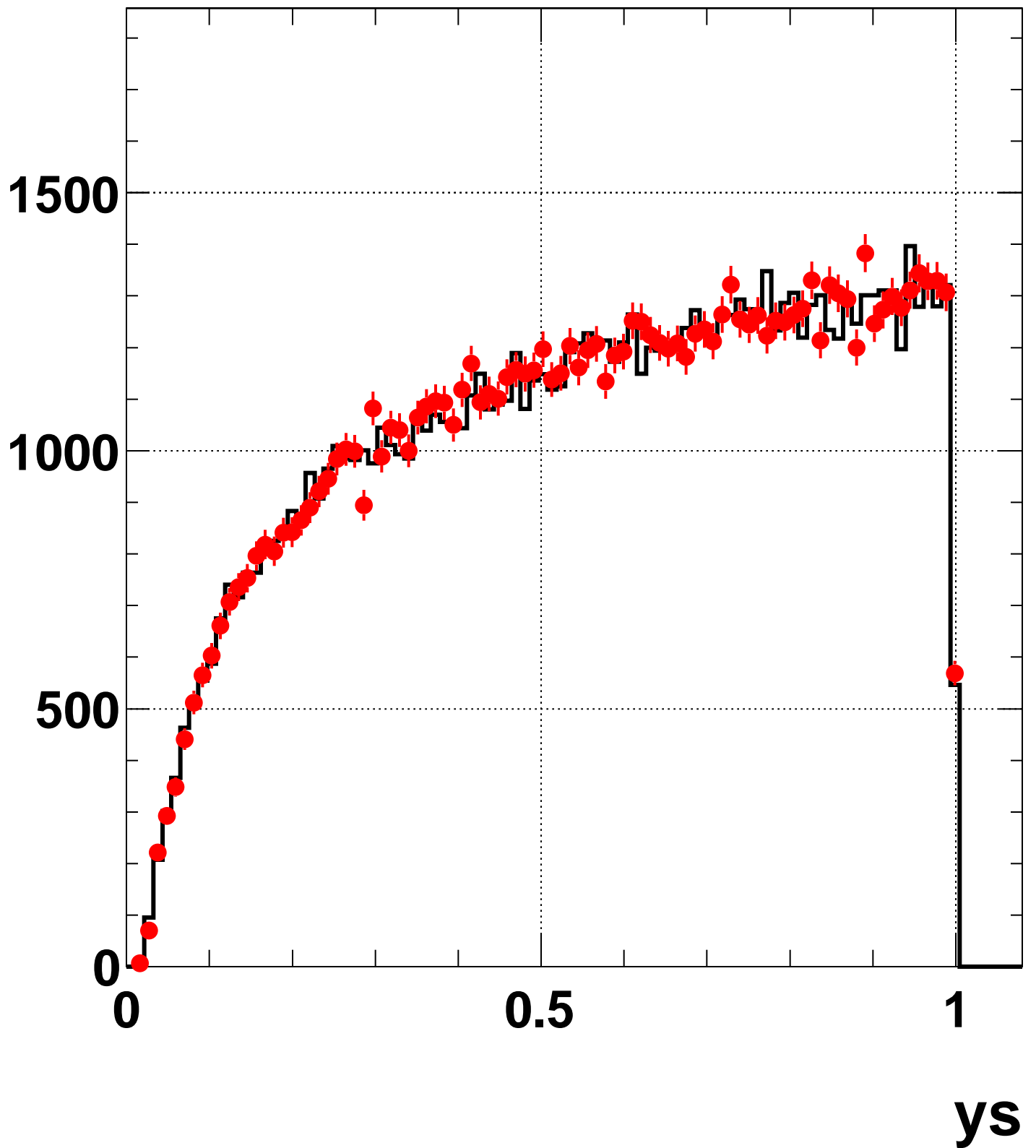
selected y for DIS CC events



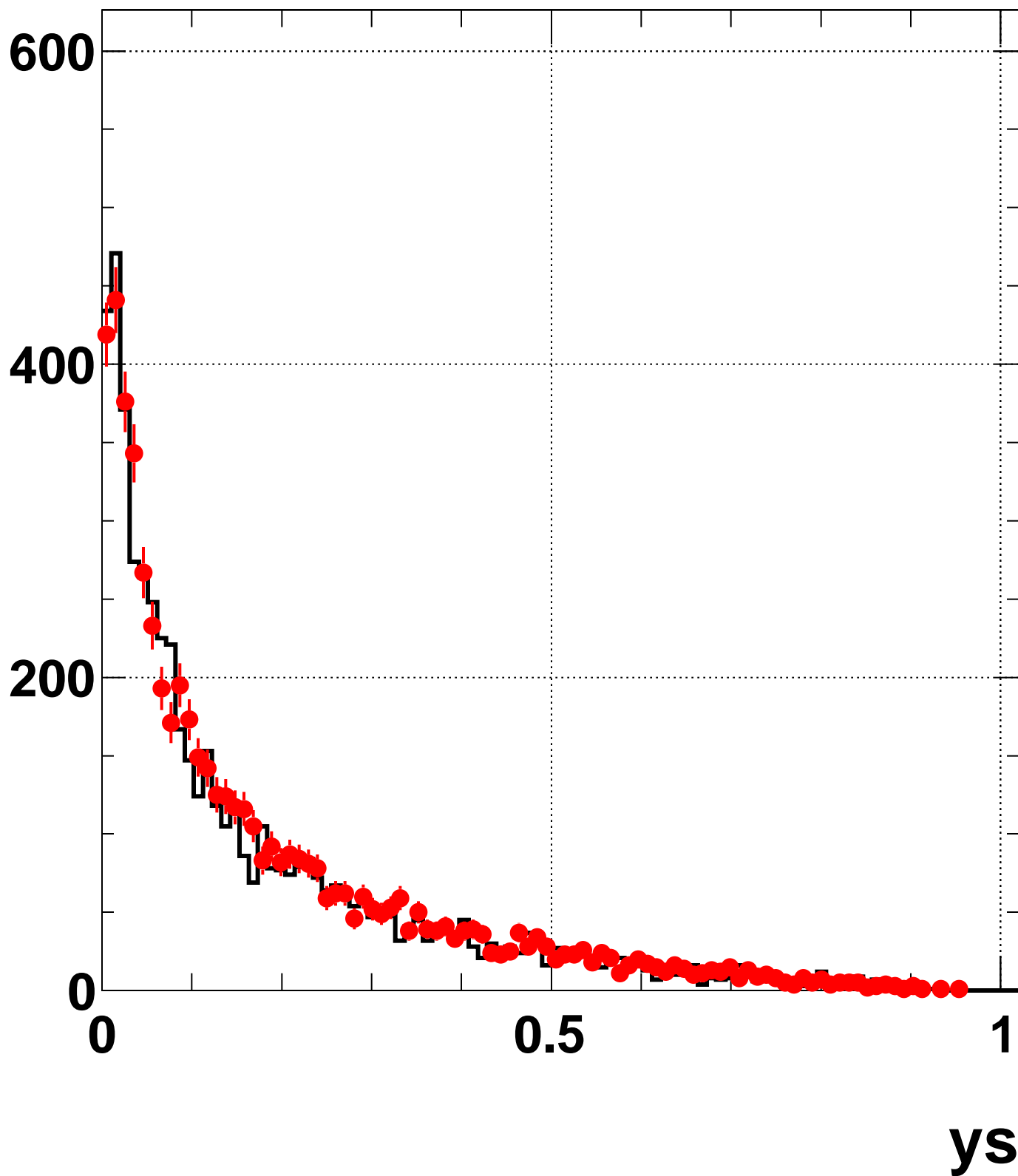
selected y for DIS NC events



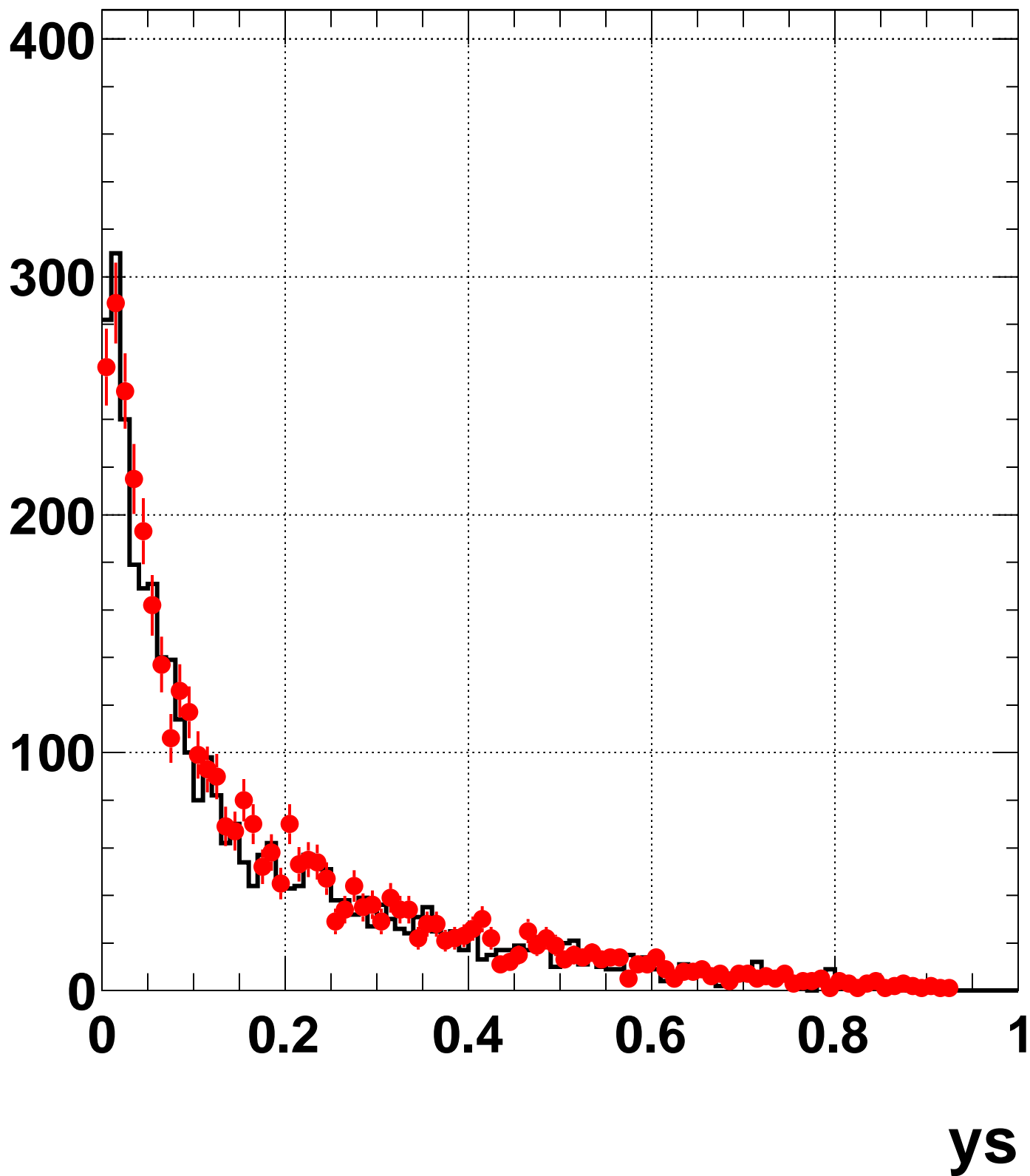
selected y for Charm/DIS events



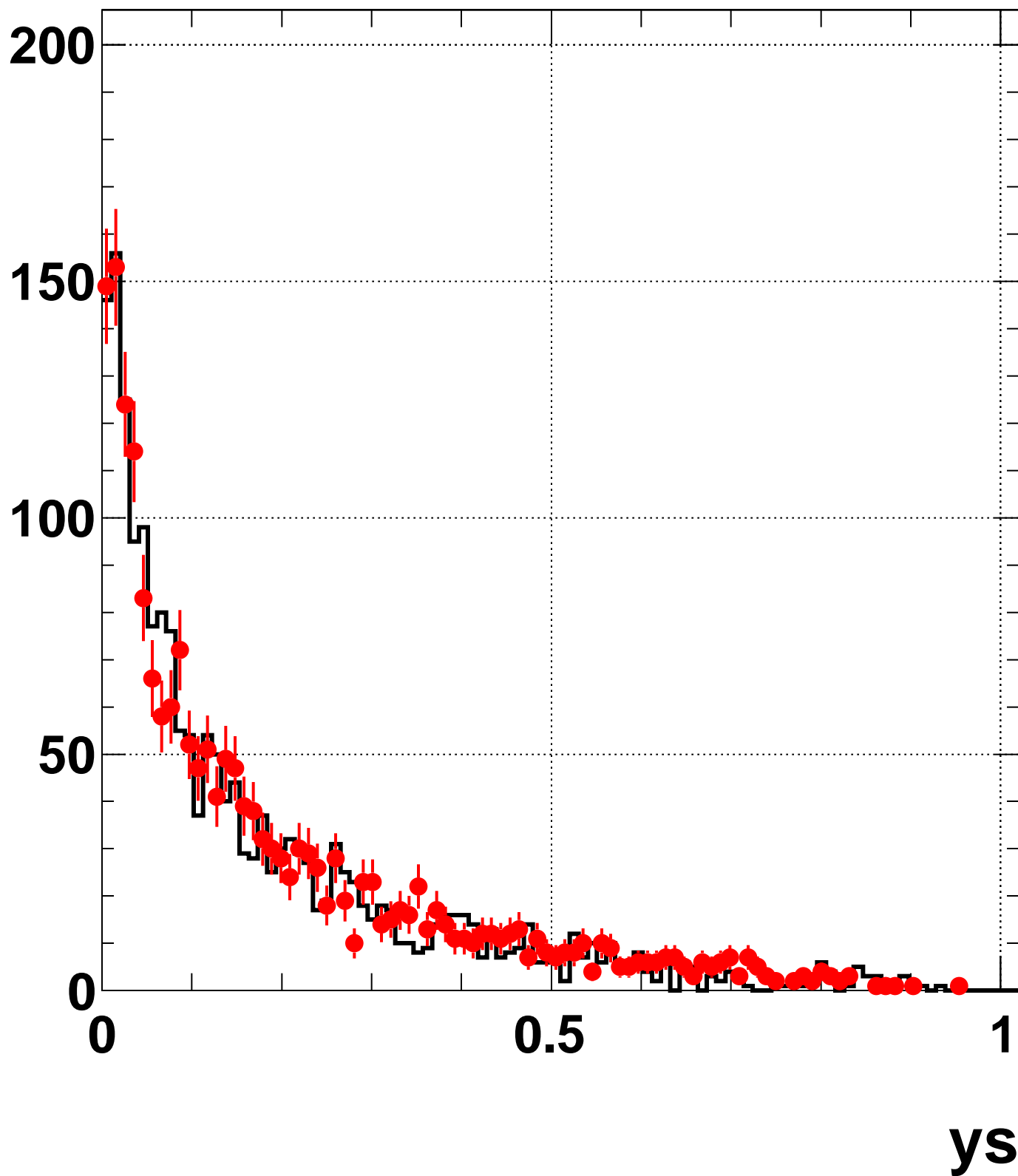
selected y for COH events



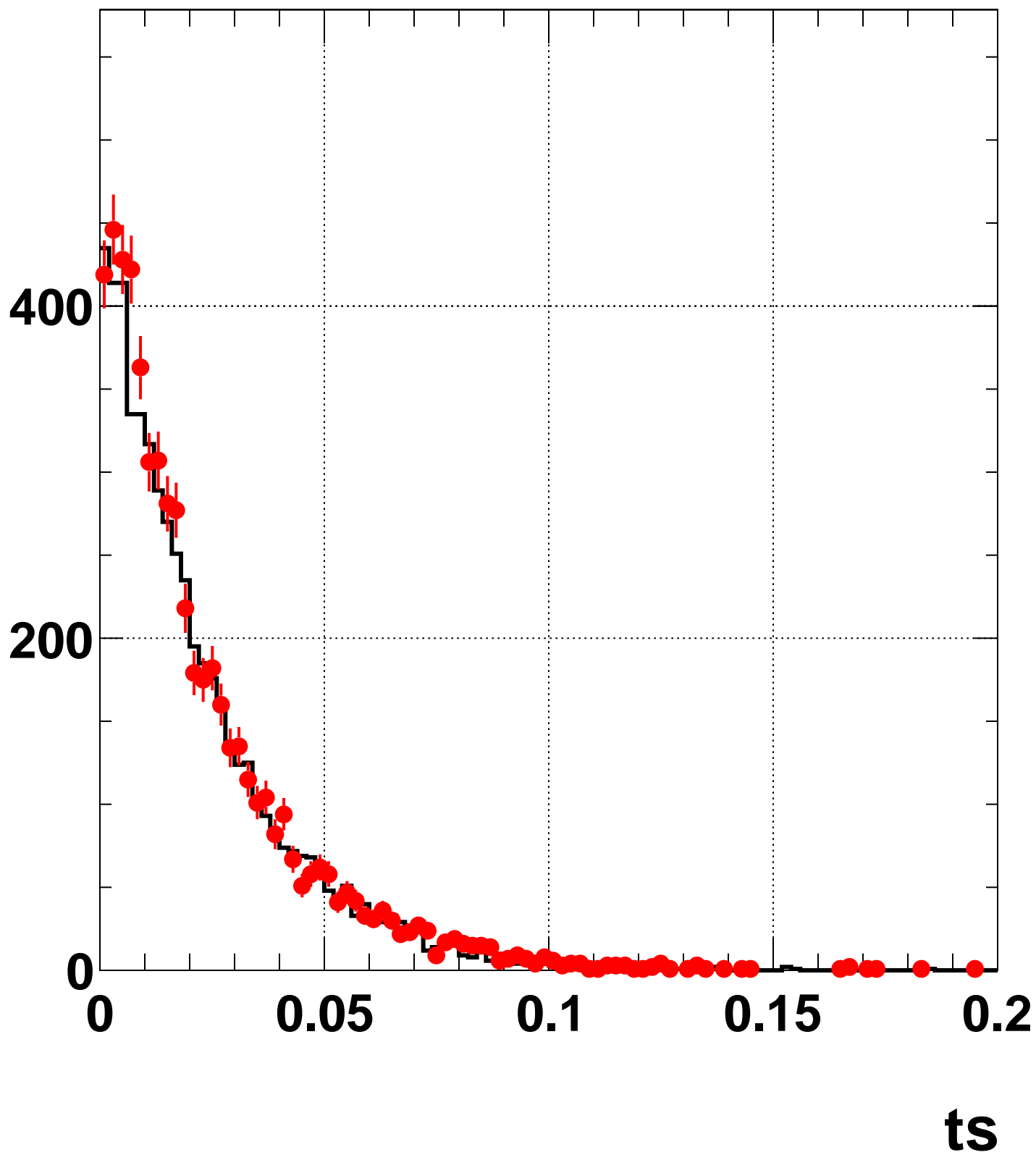
selected y for COH CC events



selected y for COH NC events



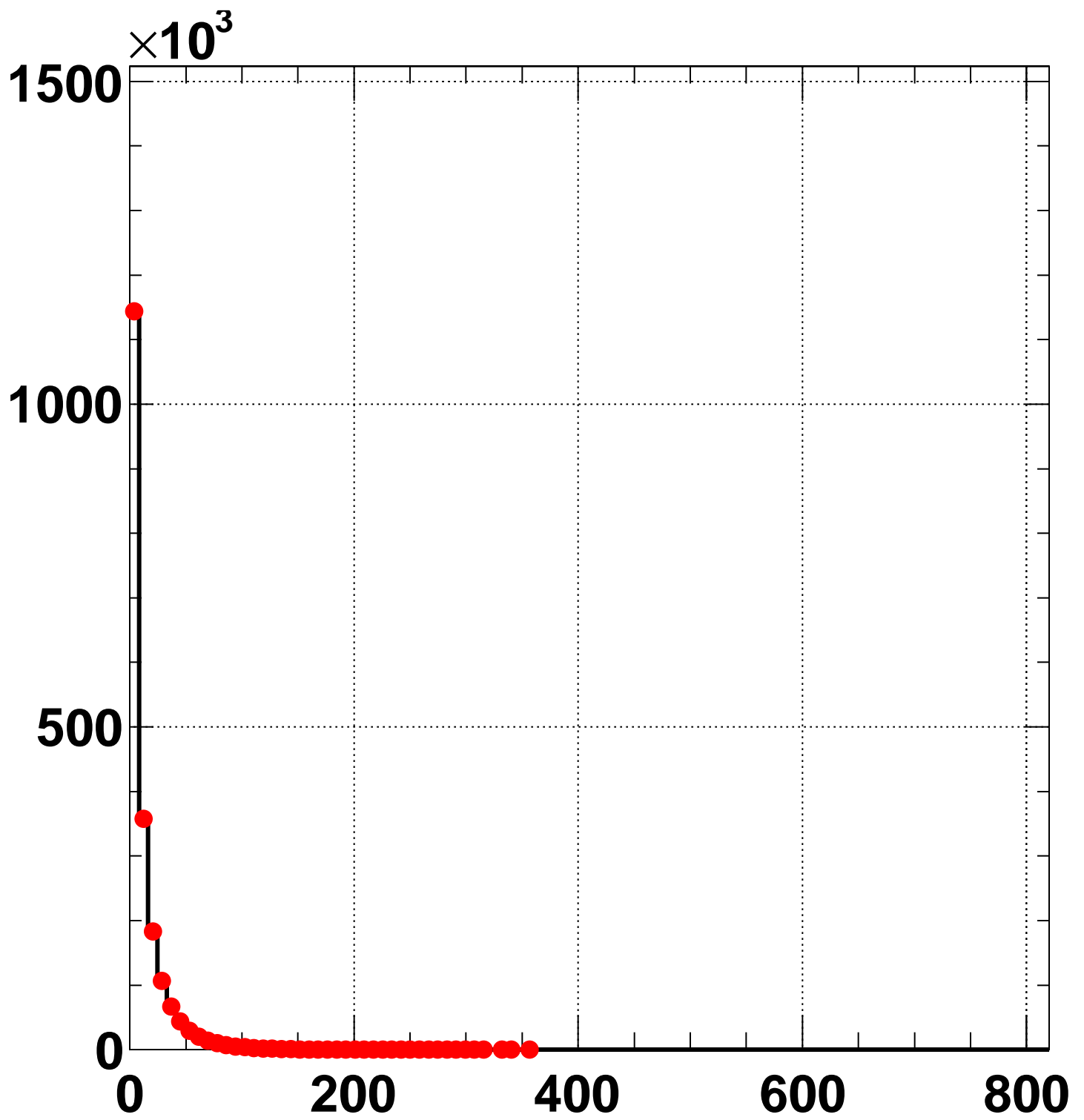
selected t for COH events



Kinematical Quantities

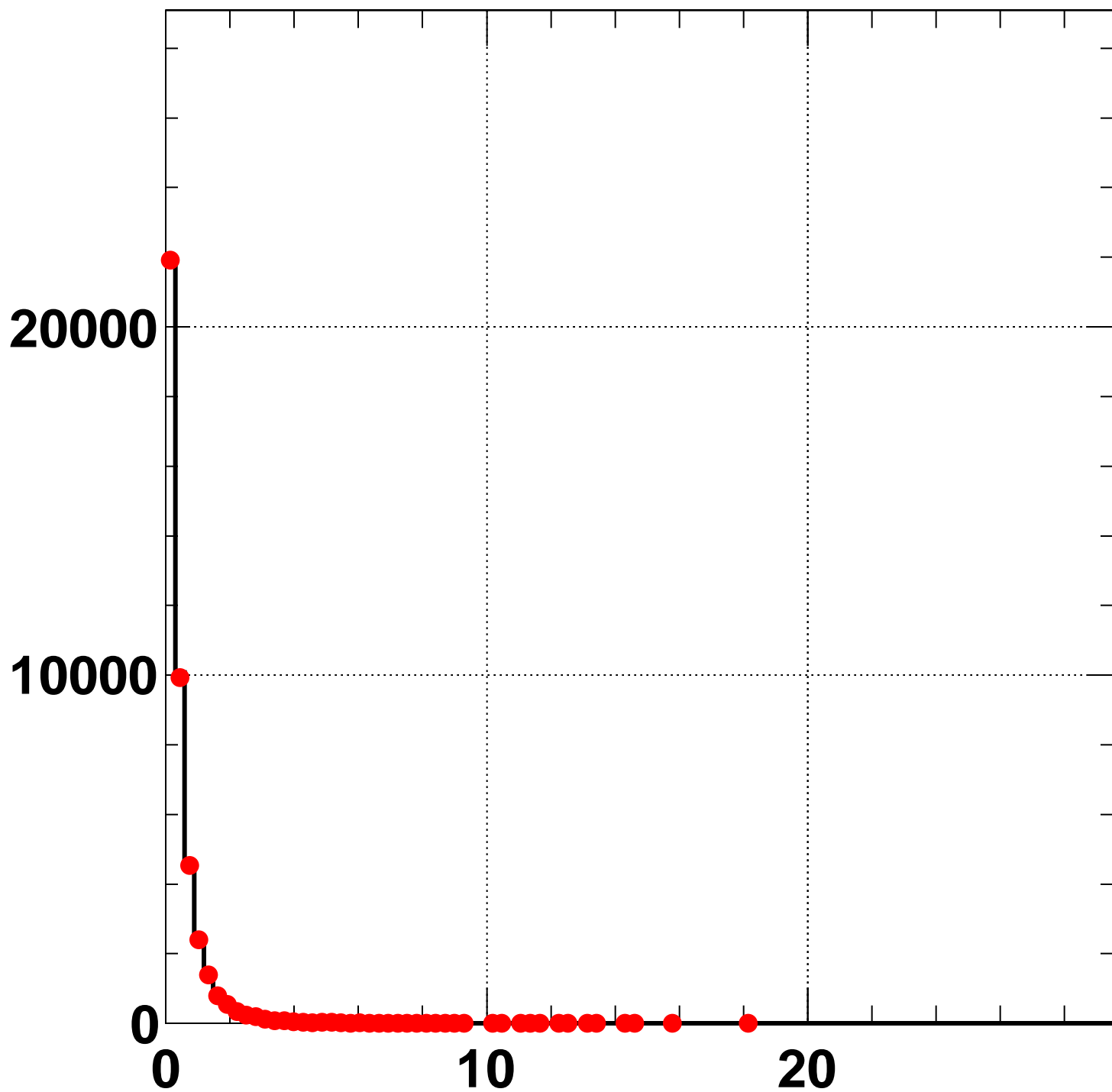
**Similar to the previous set of plots but
showing 'computed' rather than 'selected' variables**

computed Q2 for all events



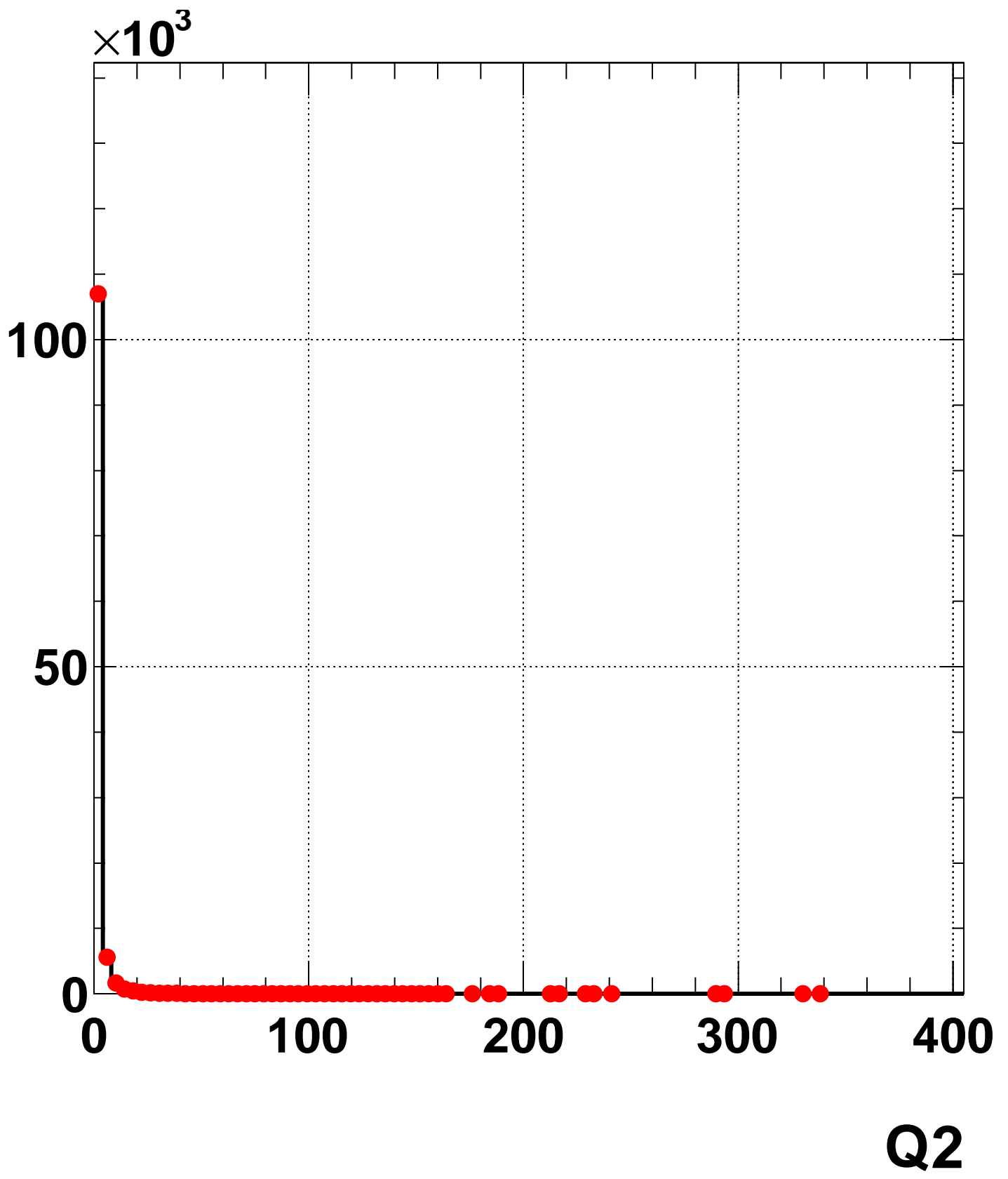
Q2

computed Q2 for QEL events

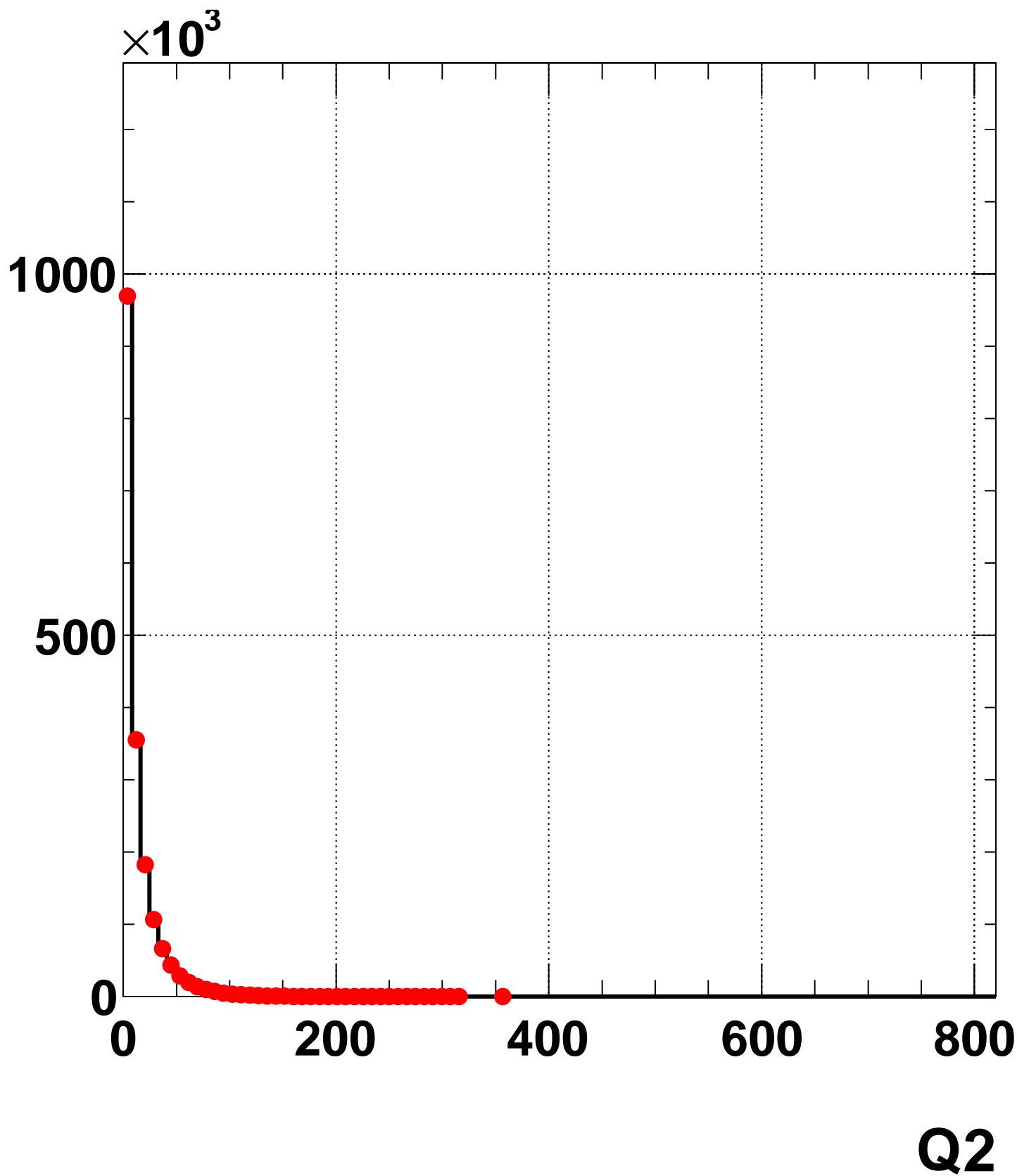


Q2

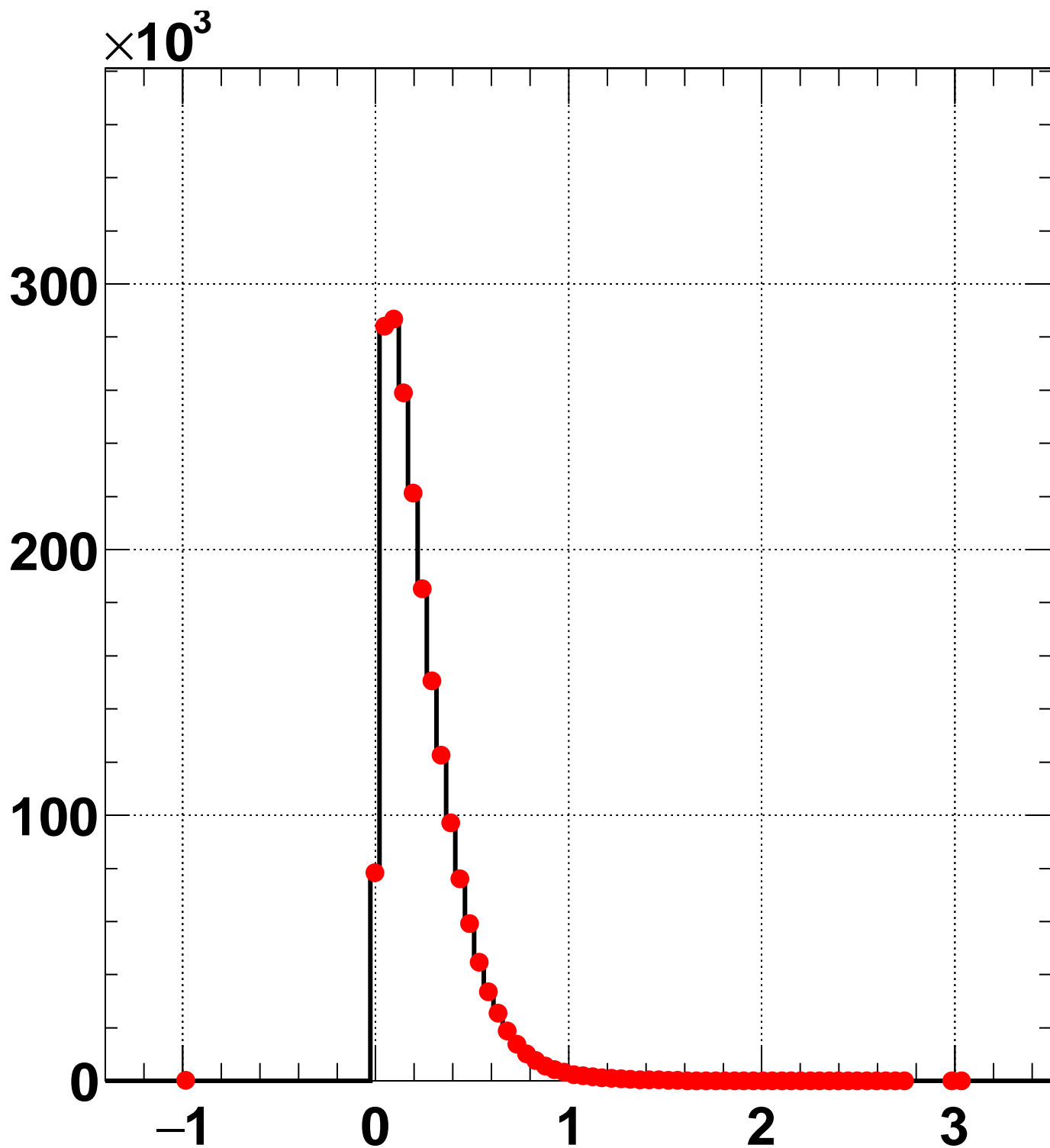
computed Q2 for RES events



computed Q2 for DIS events

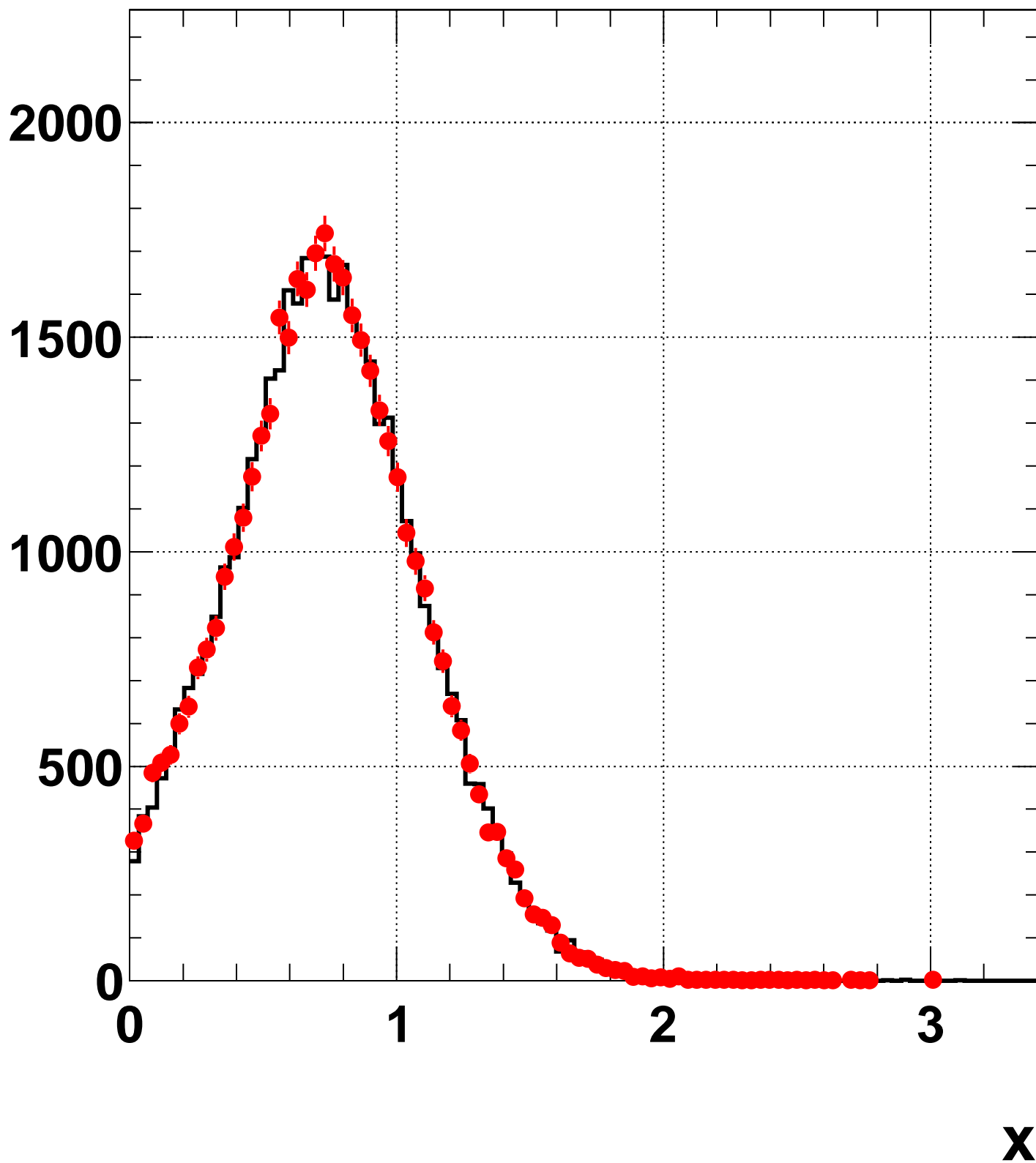


computed x for all events

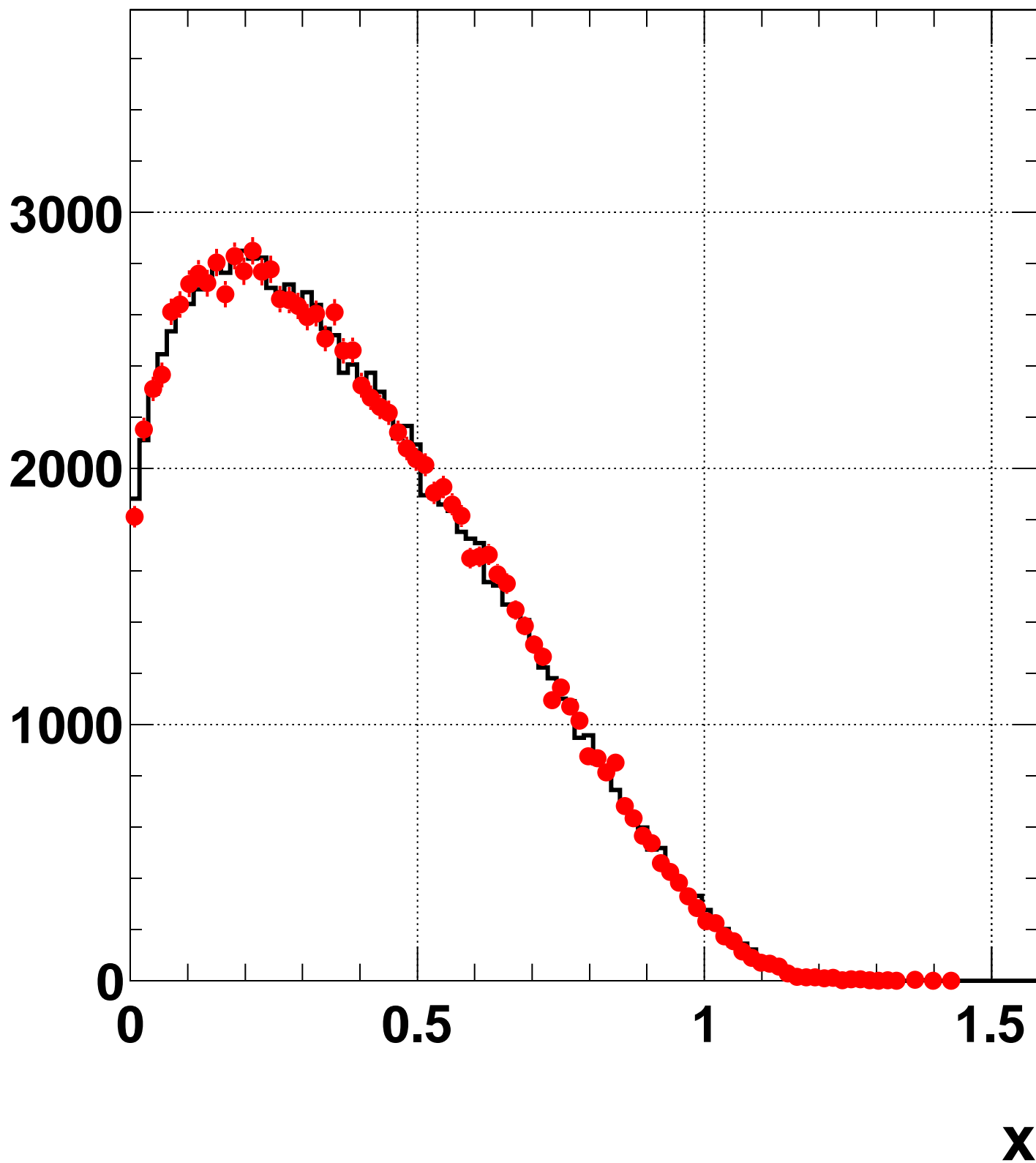


x

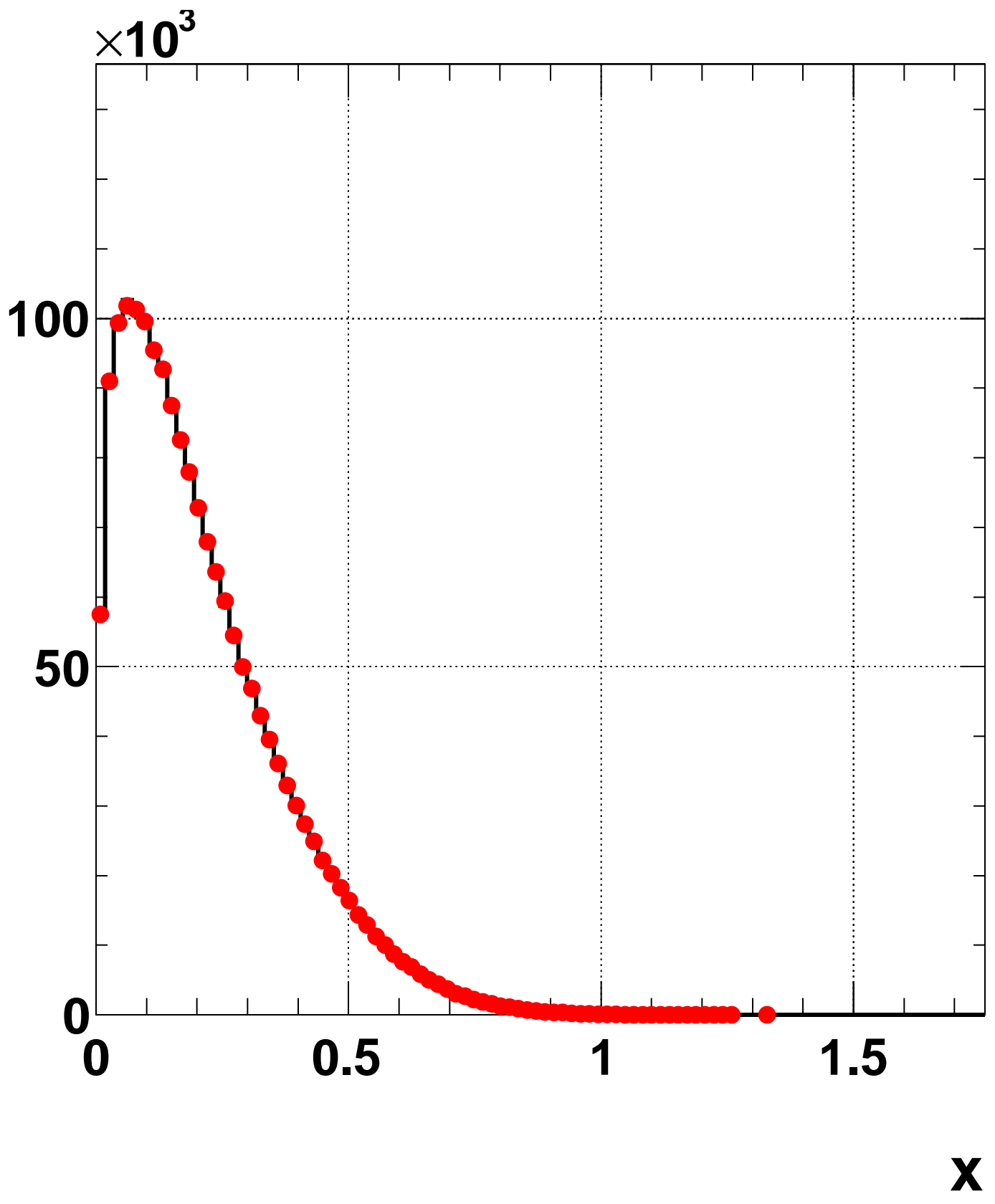
computed x for QEL events



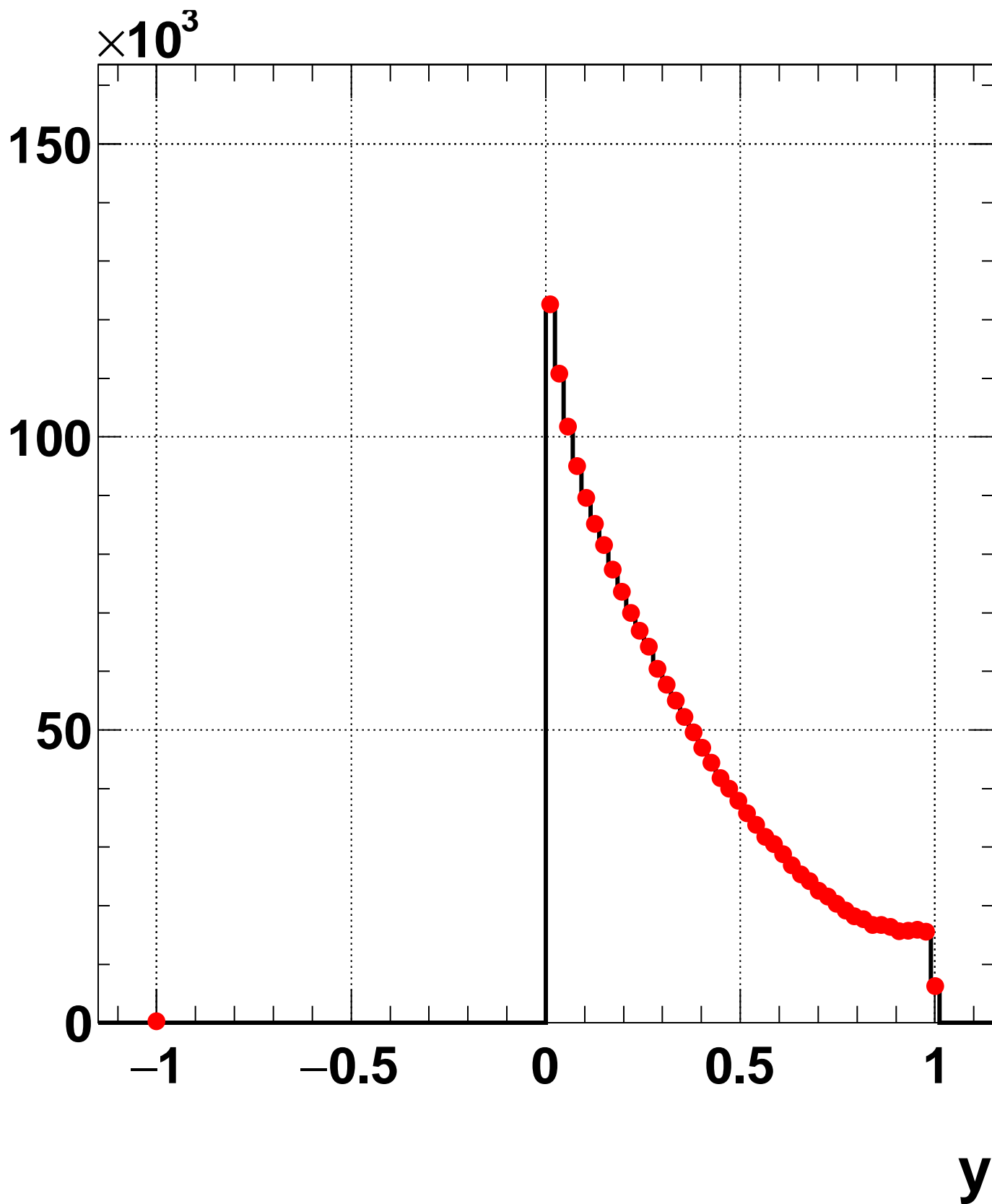
computed x for RES events



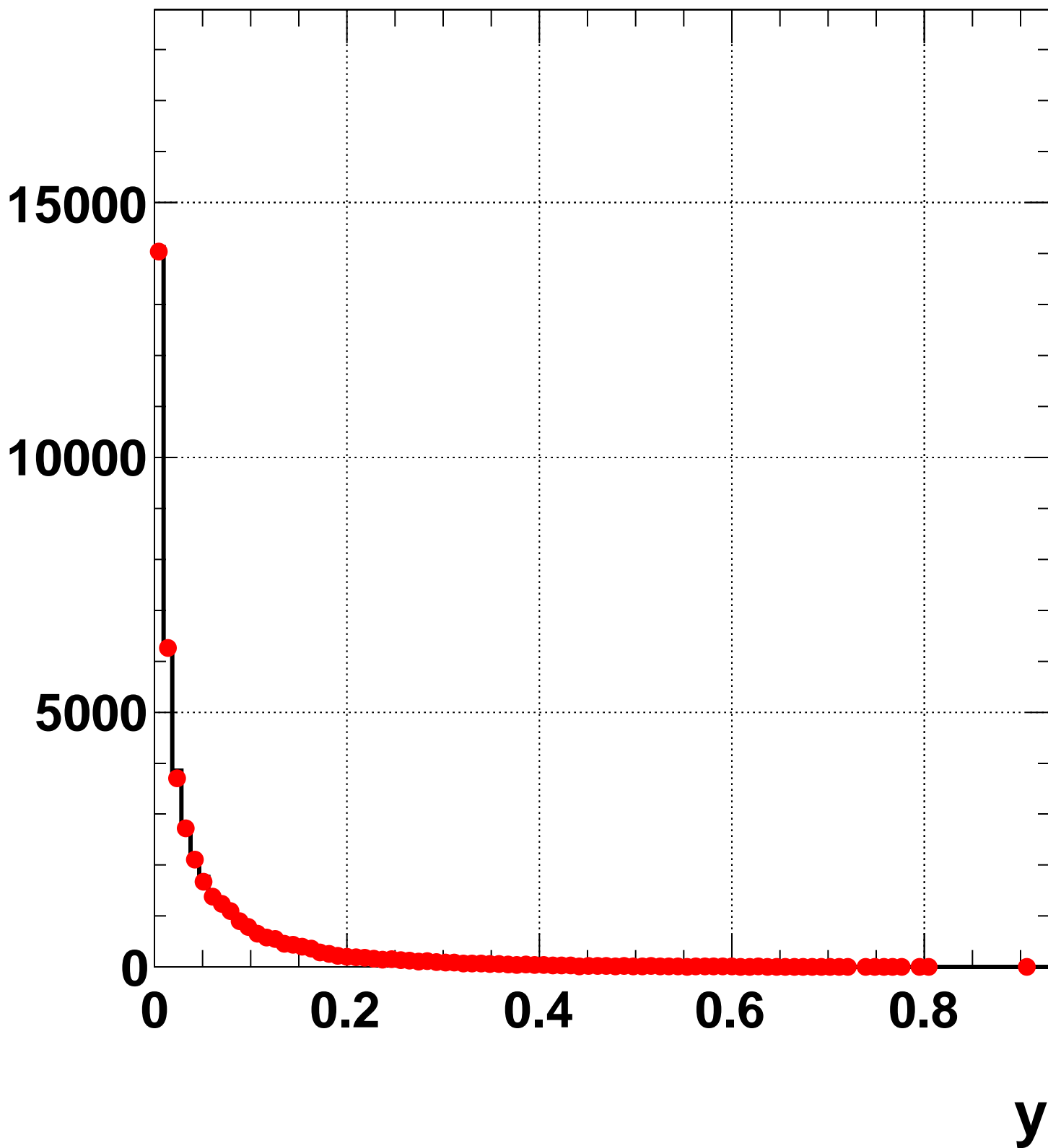
computed x for DIS events



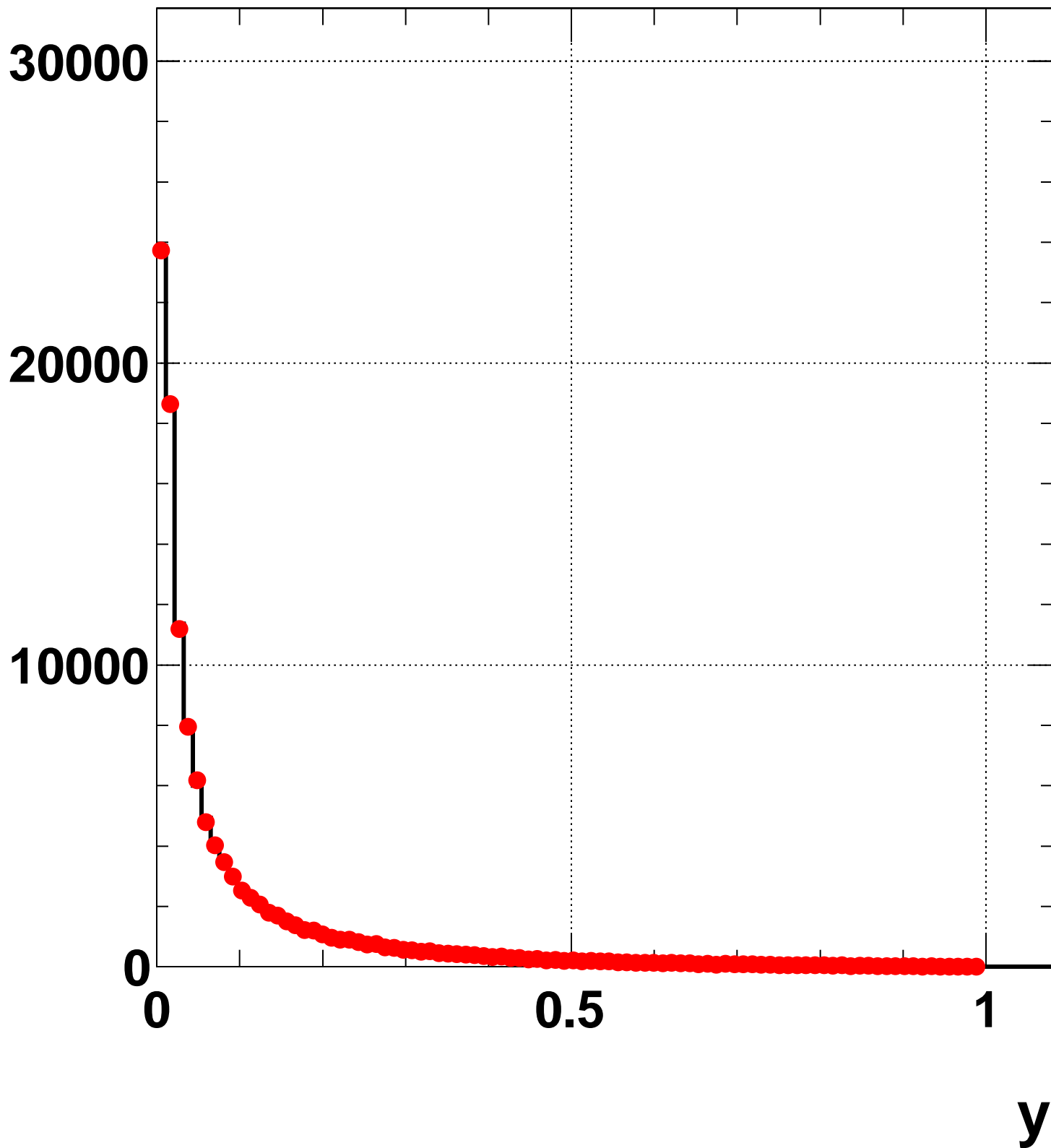
computed y for all events



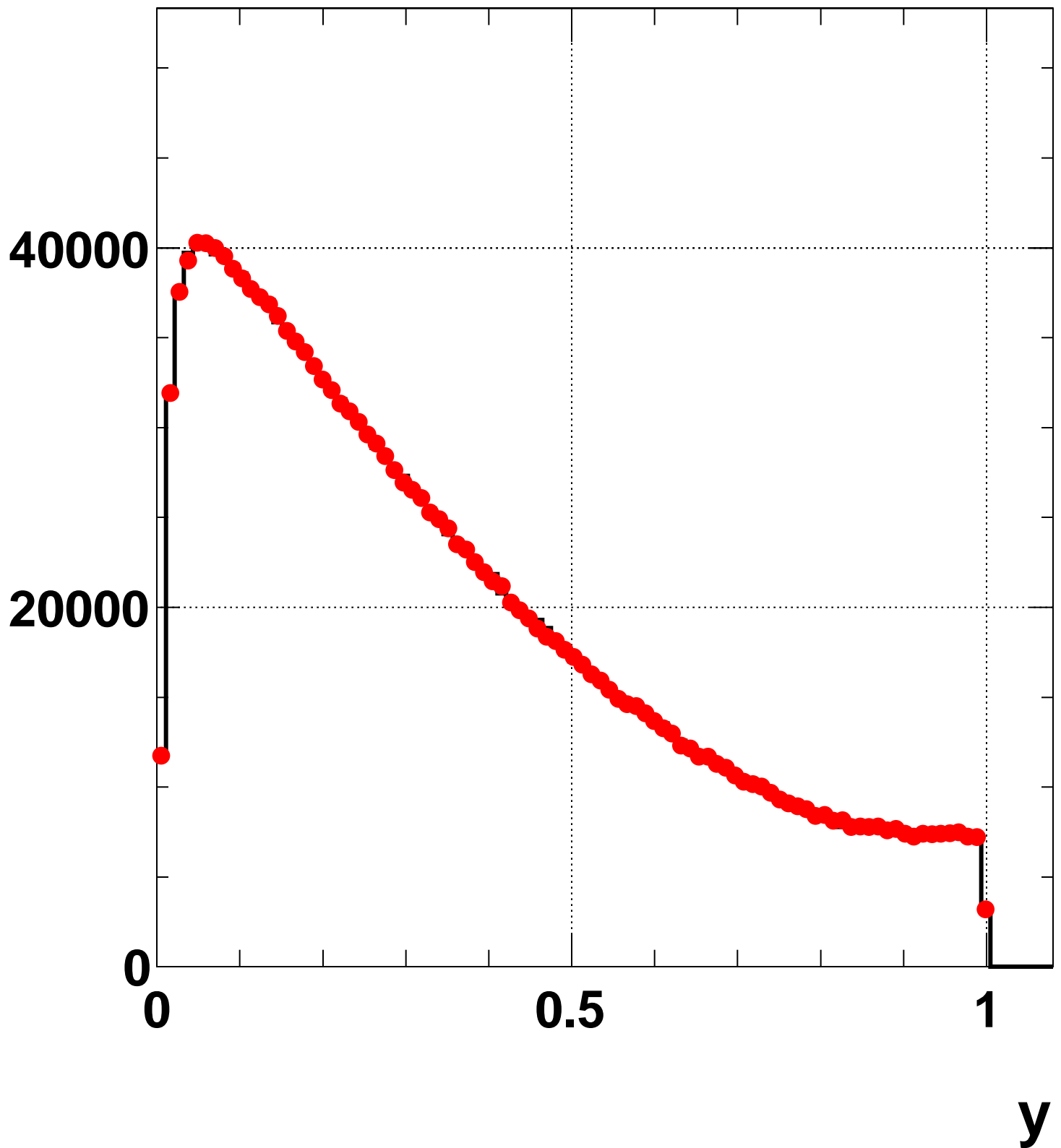
computed y for QEL events



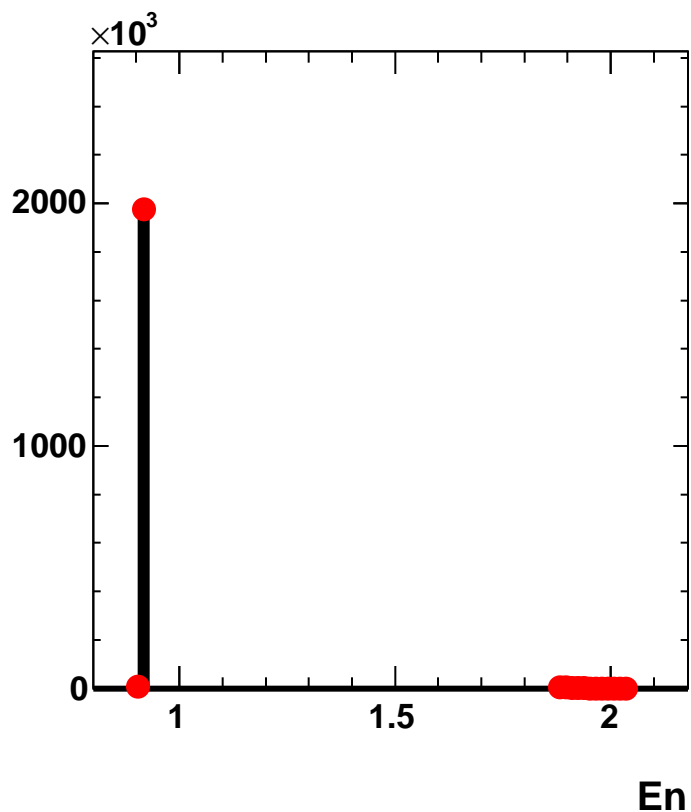
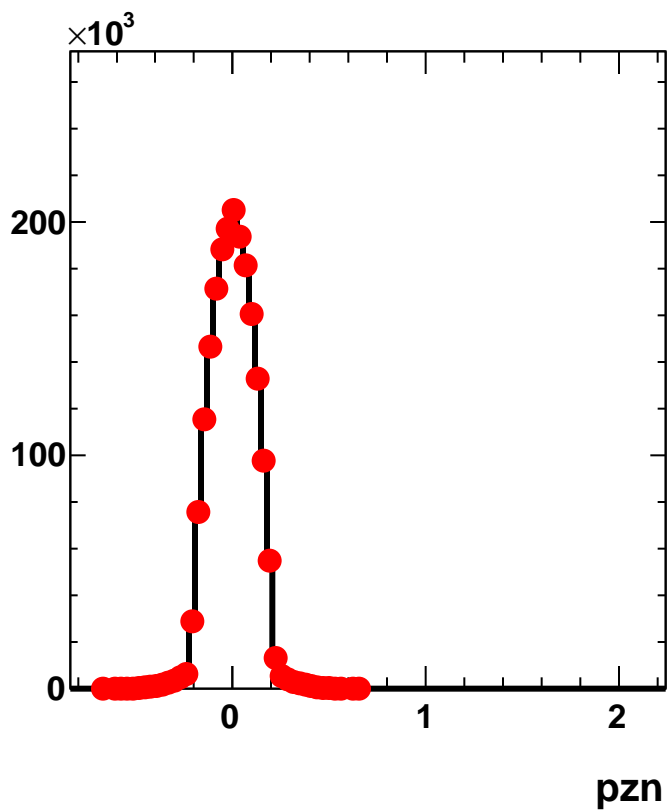
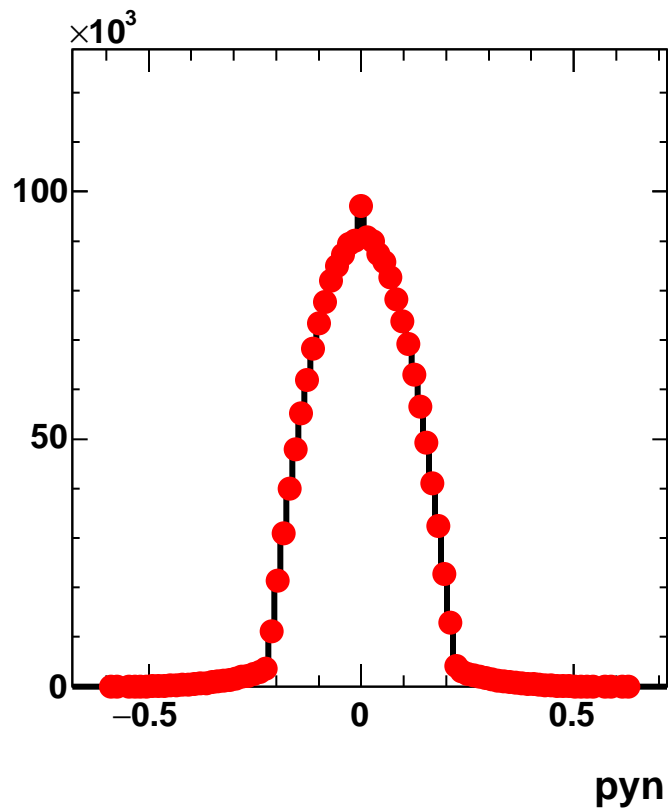
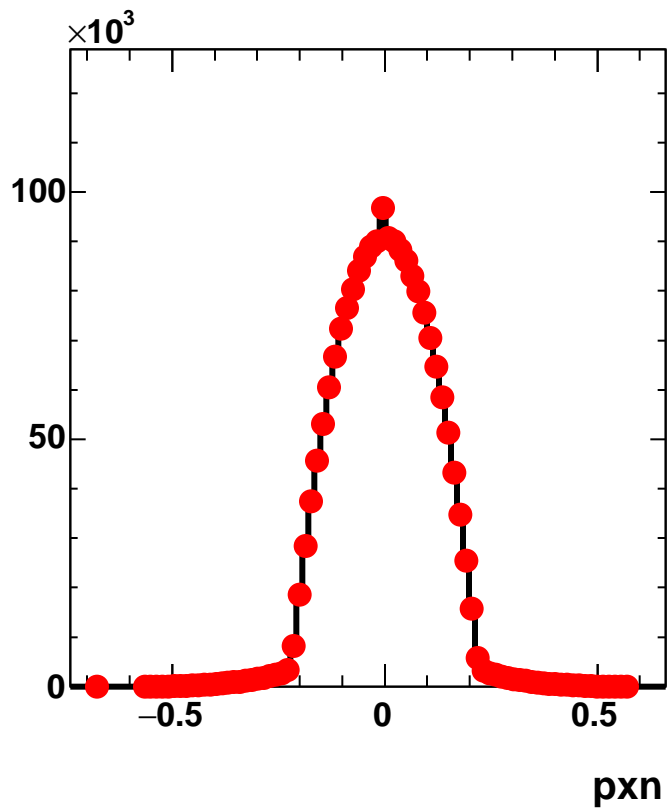
computed y for RES events



computed y for DIS events

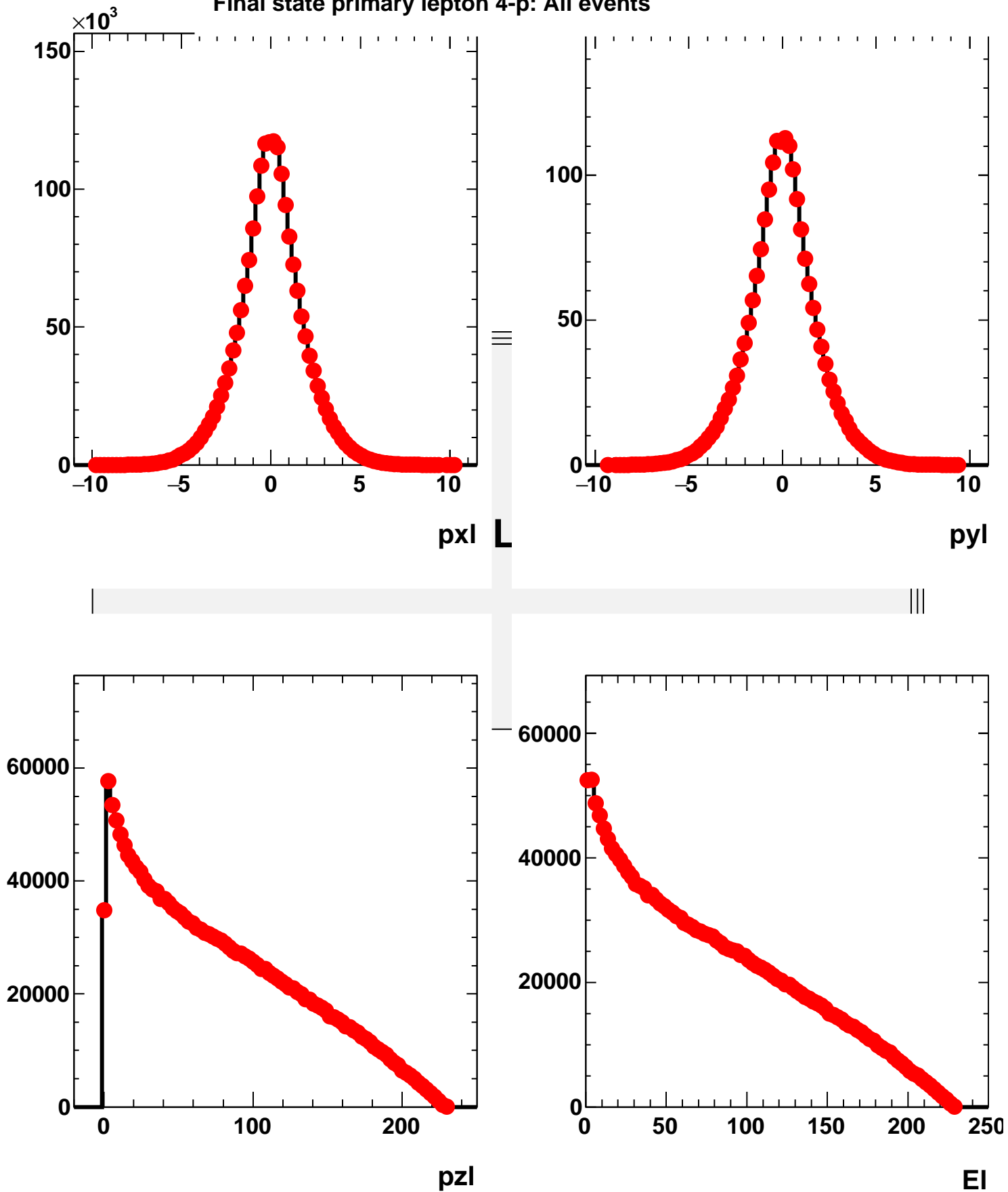


Initial state nucleon 4-Momentum

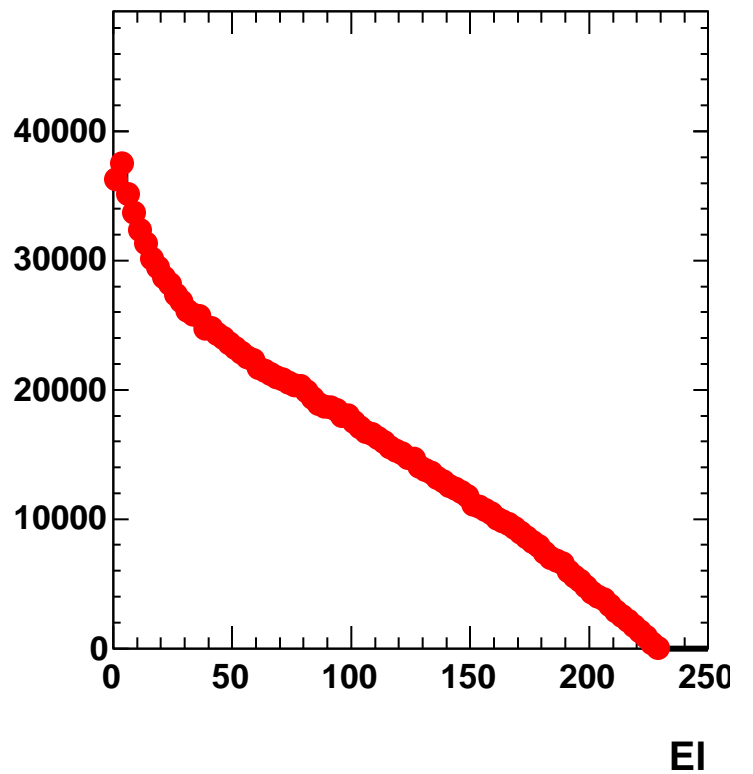
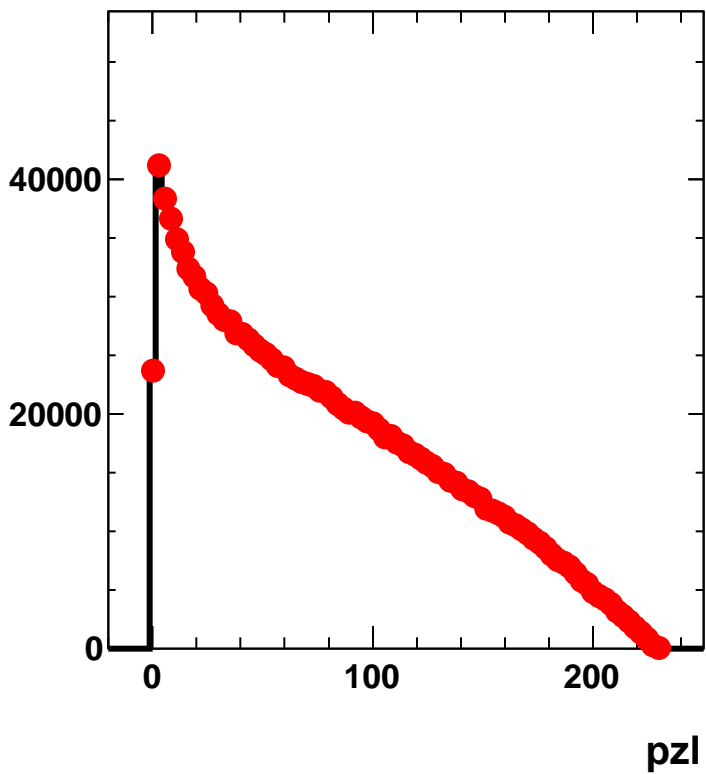
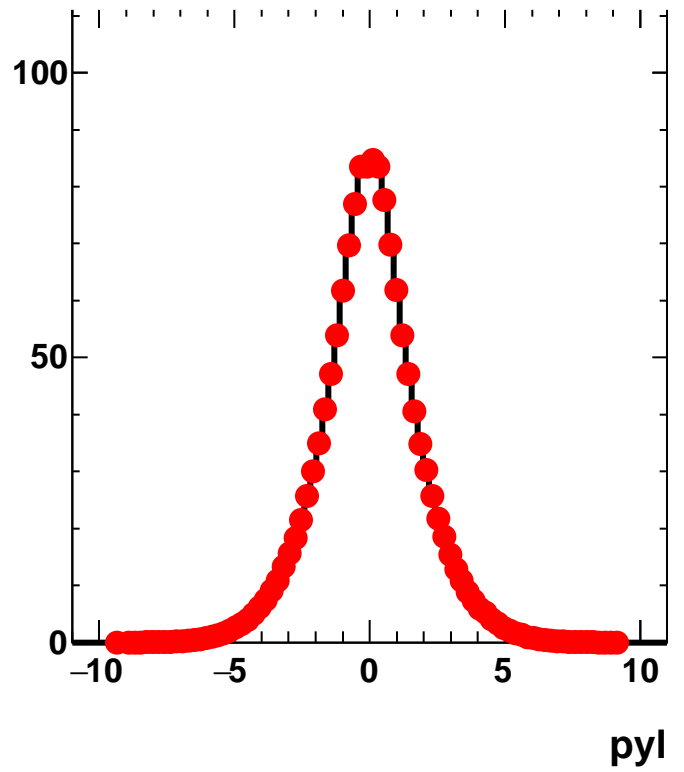
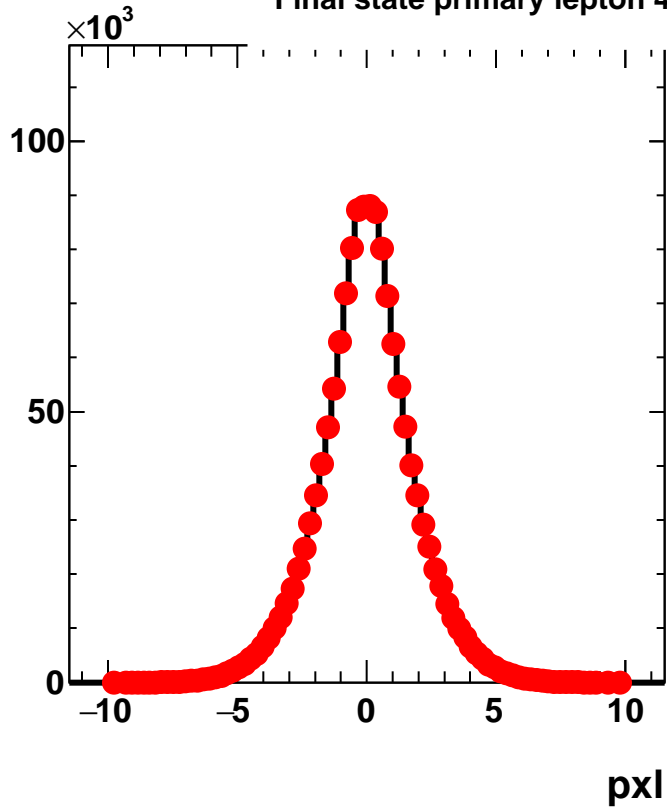


Final State Primary Lepton 4-Momentum

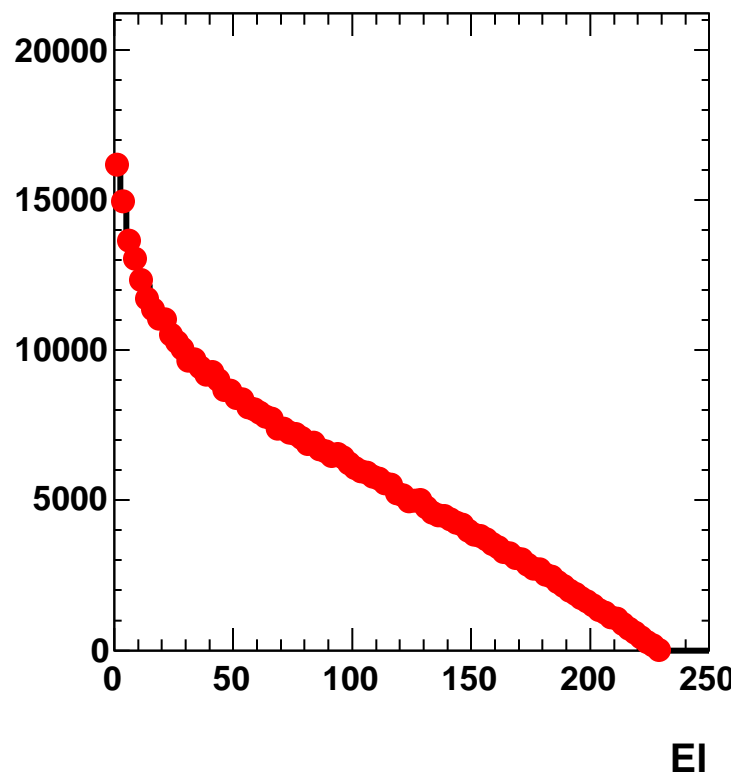
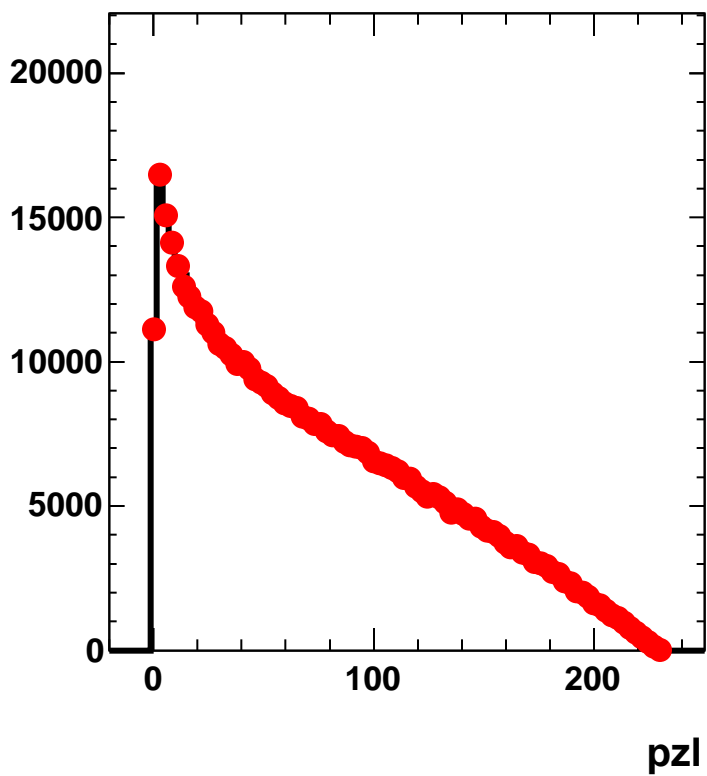
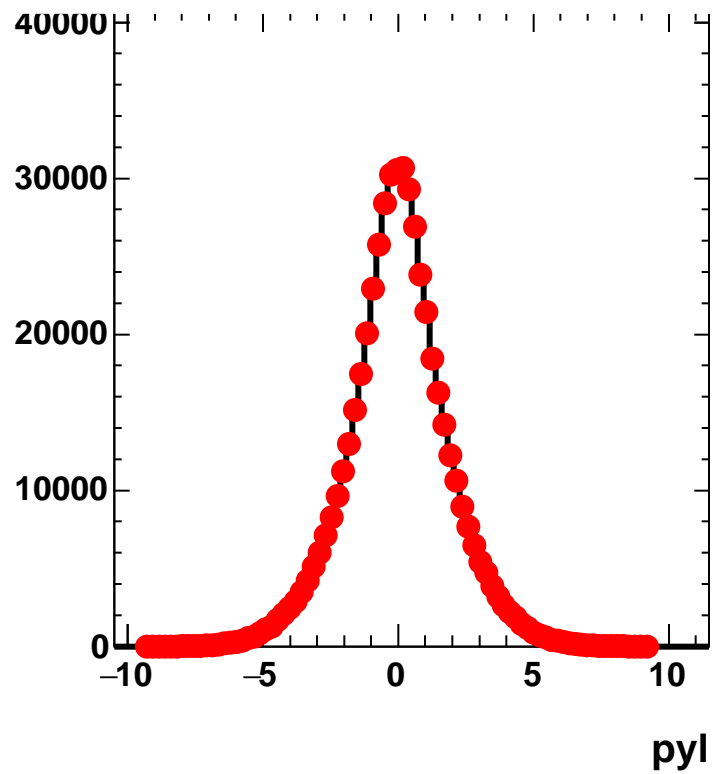
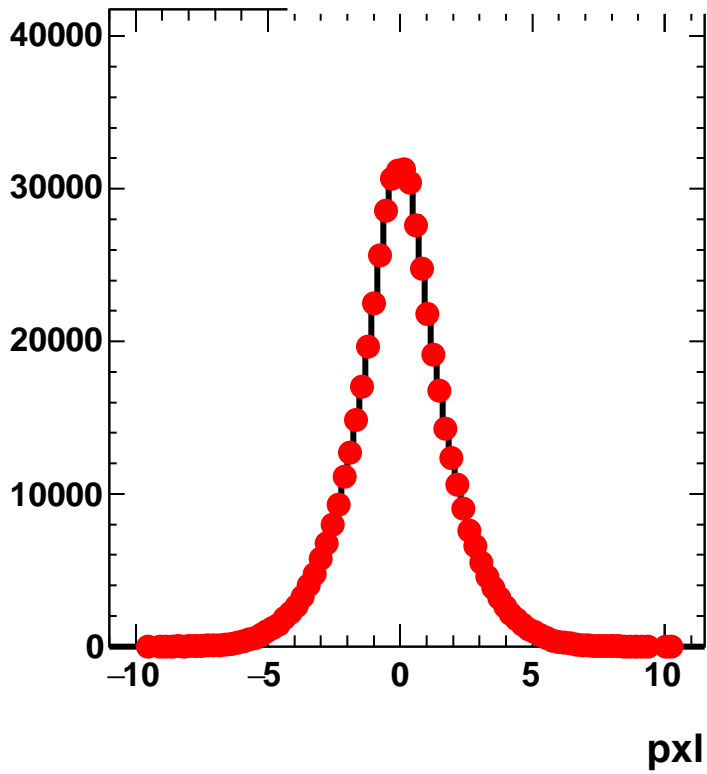
Final state primary lepton 4-p: All events



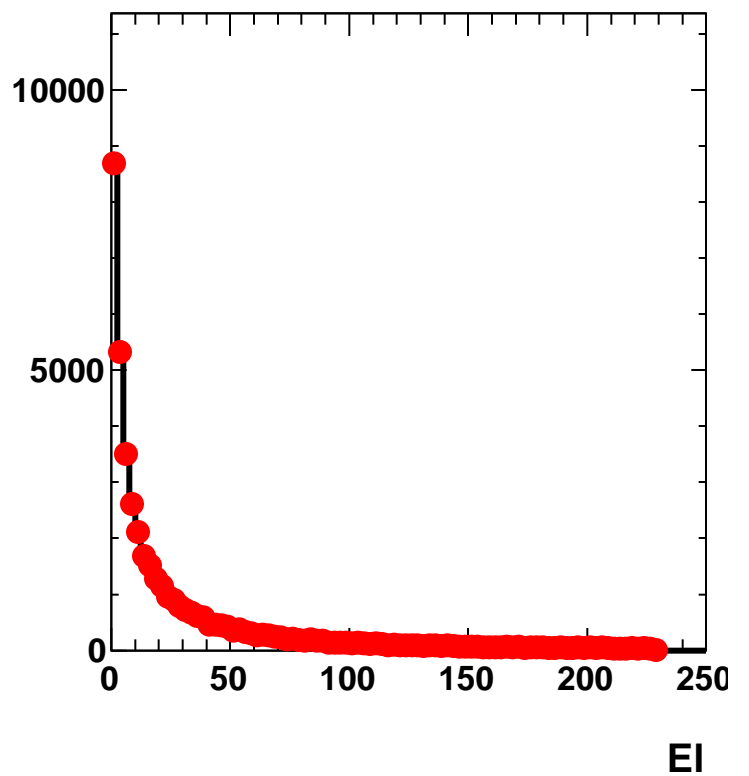
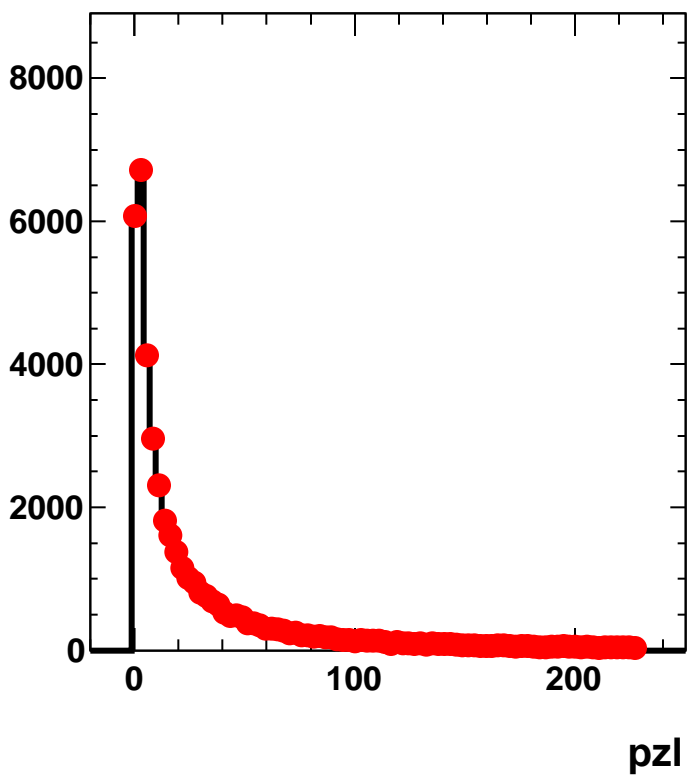
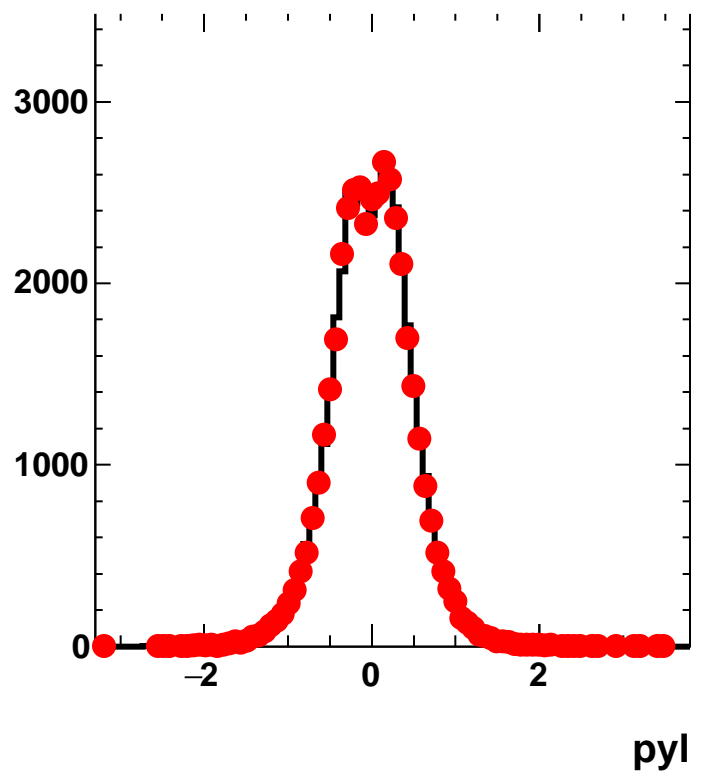
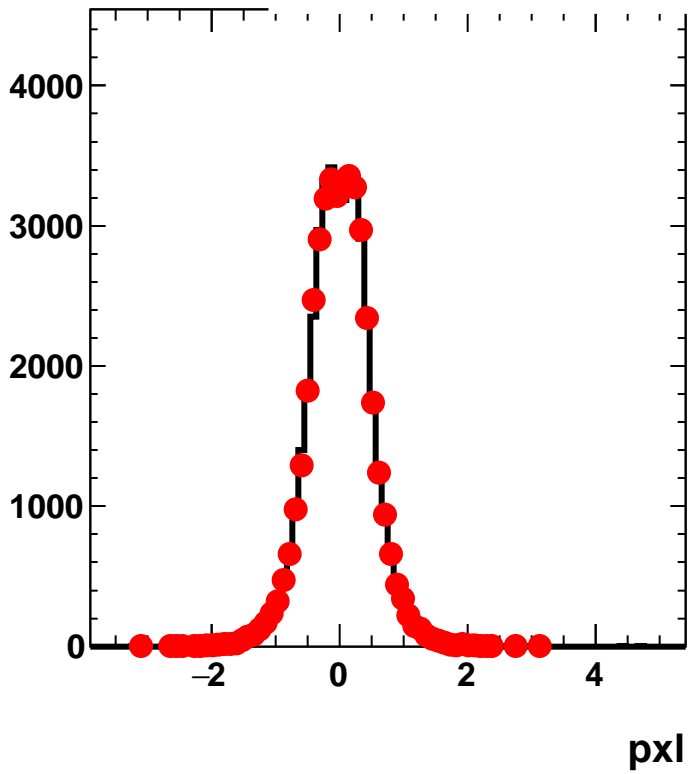
Final state primary lepton 4-p: All CC events



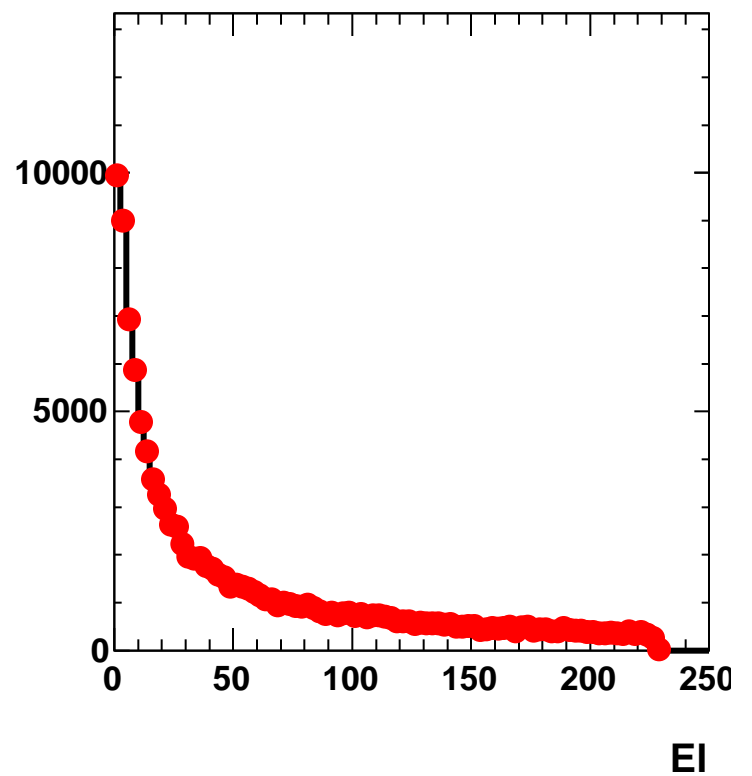
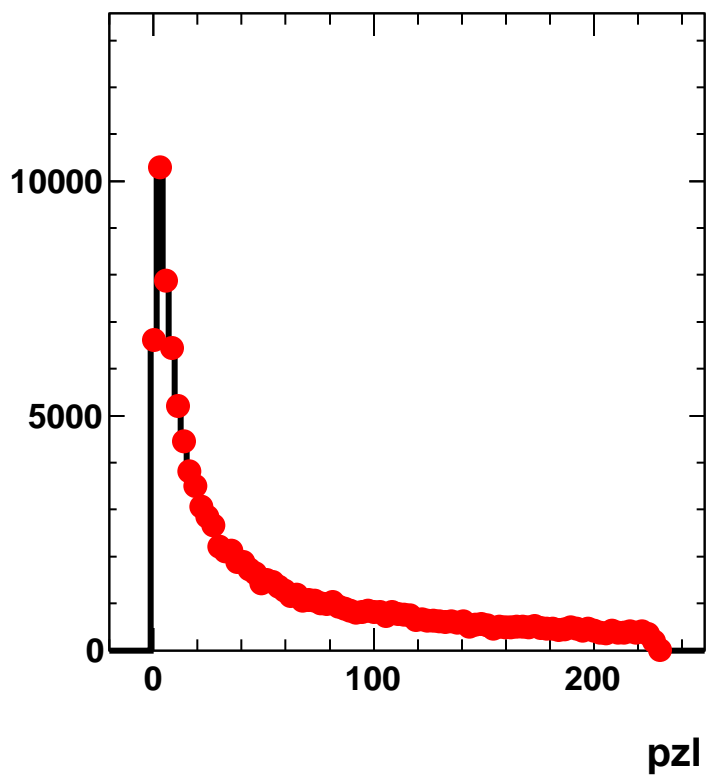
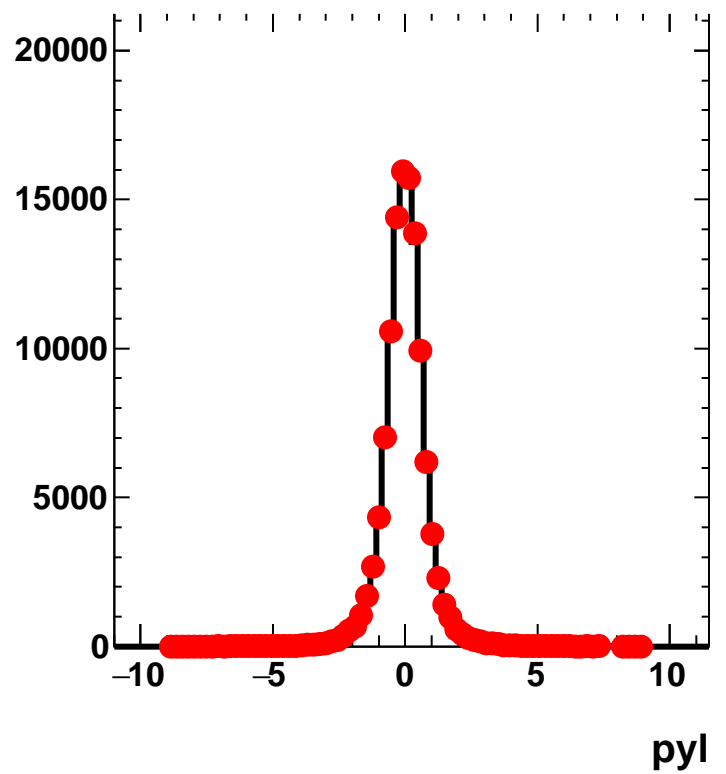
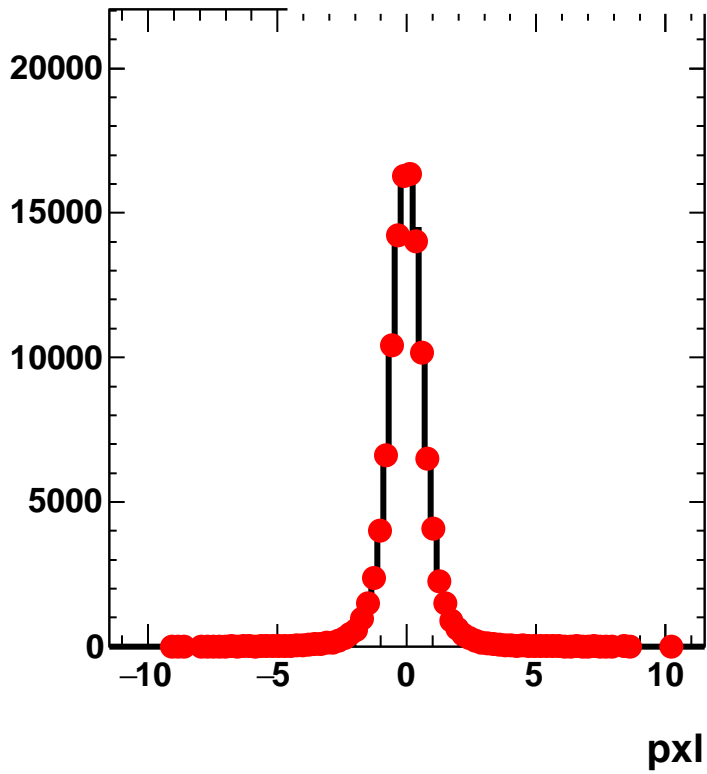
Final state primary lepton 4-p: All NC events



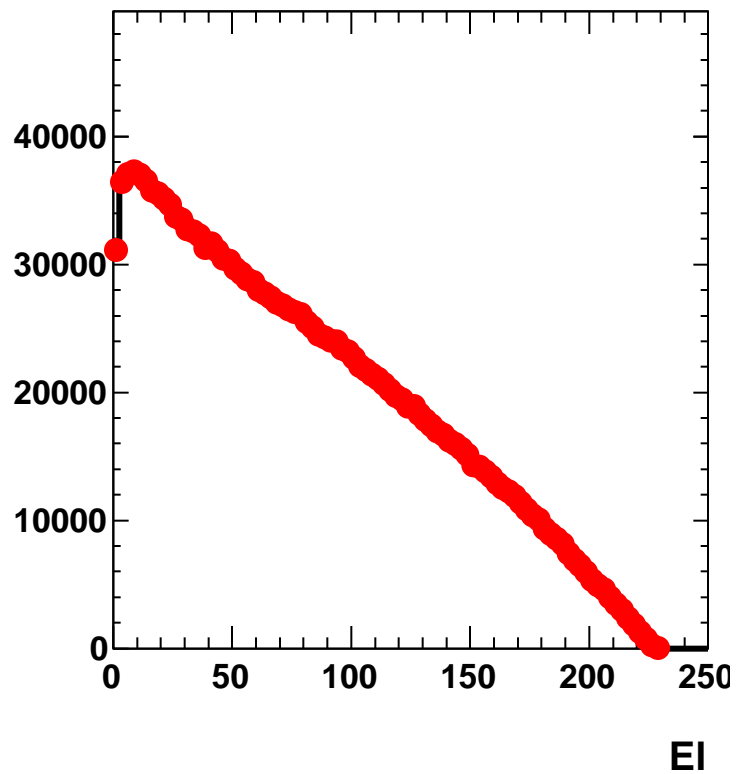
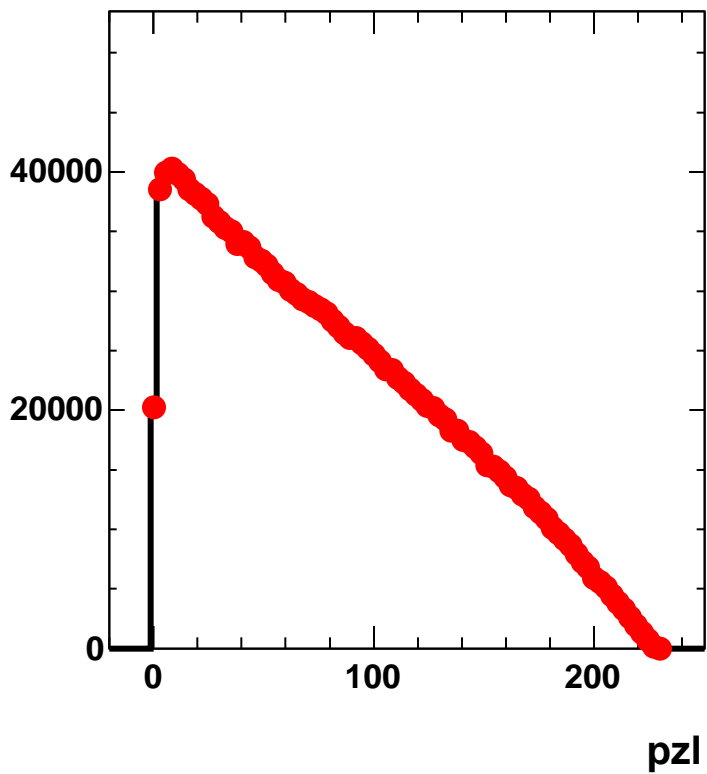
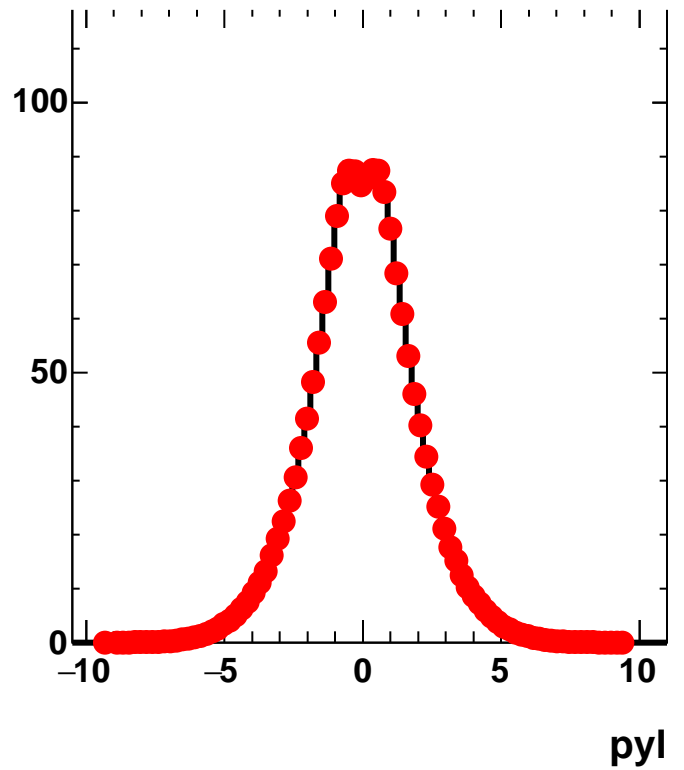
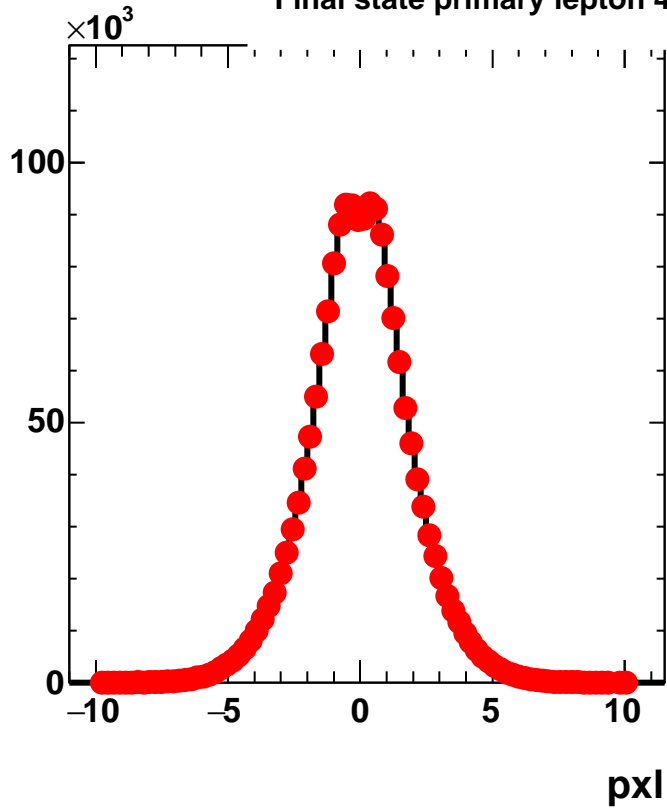
Final state primary lepton 4-p: QEL events



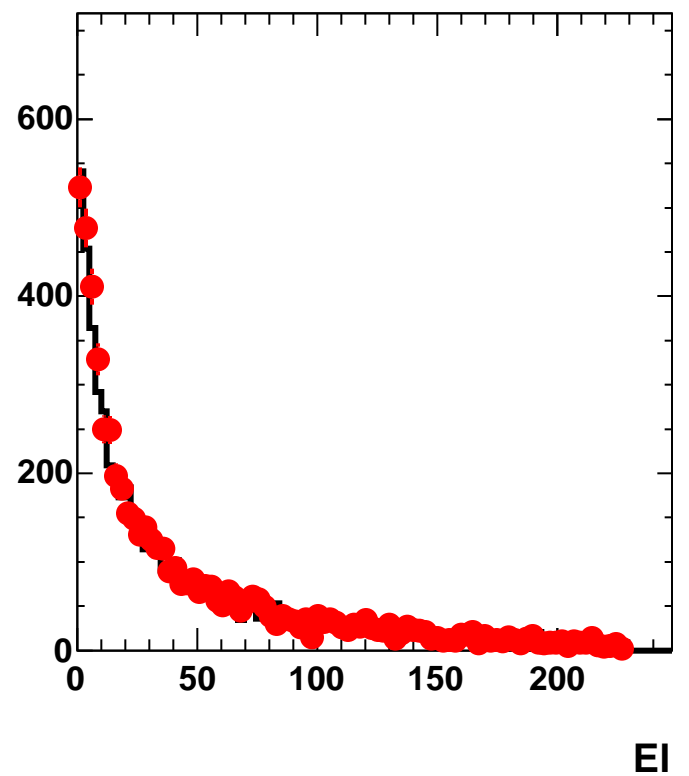
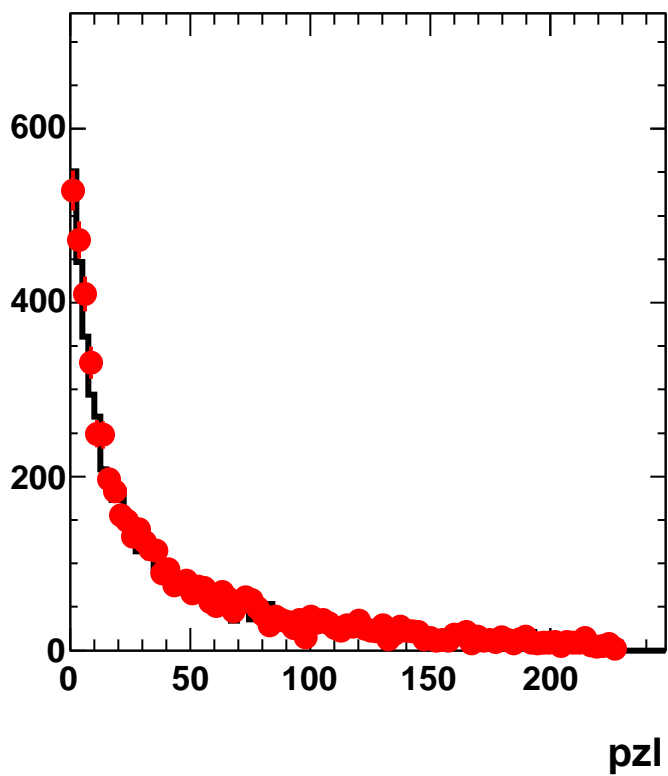
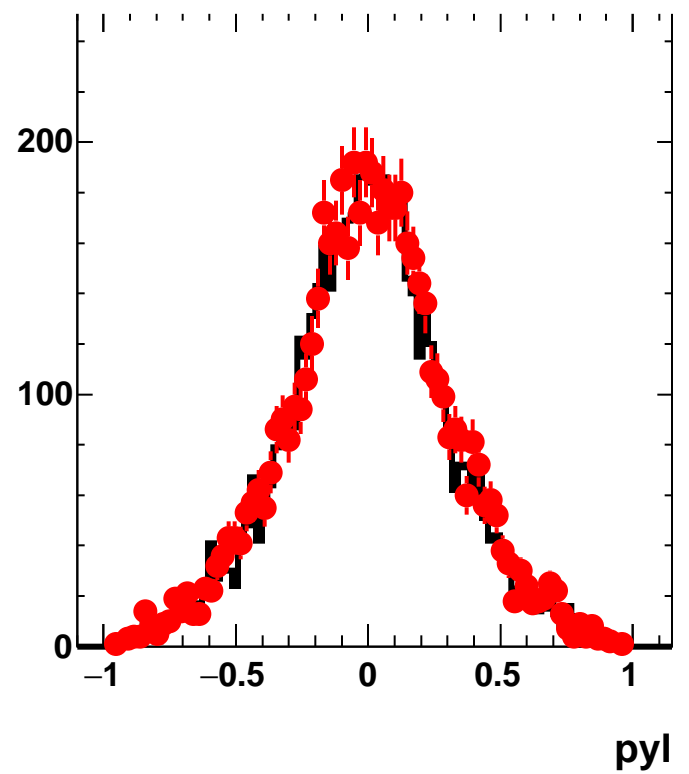
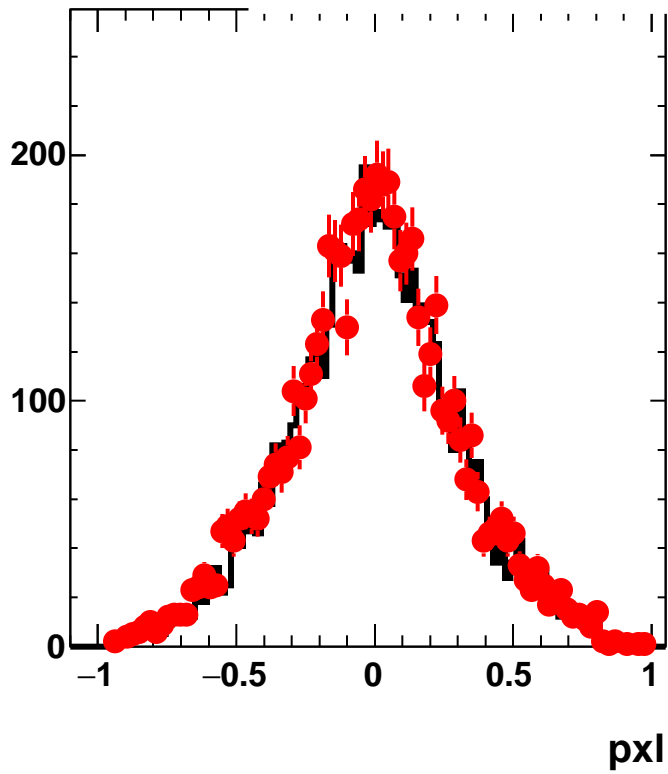
Final state primary lepton 4-p: RES events



Final state primary lepton 4-p: All DIS events



Final state primary lepton 4-p: COH events

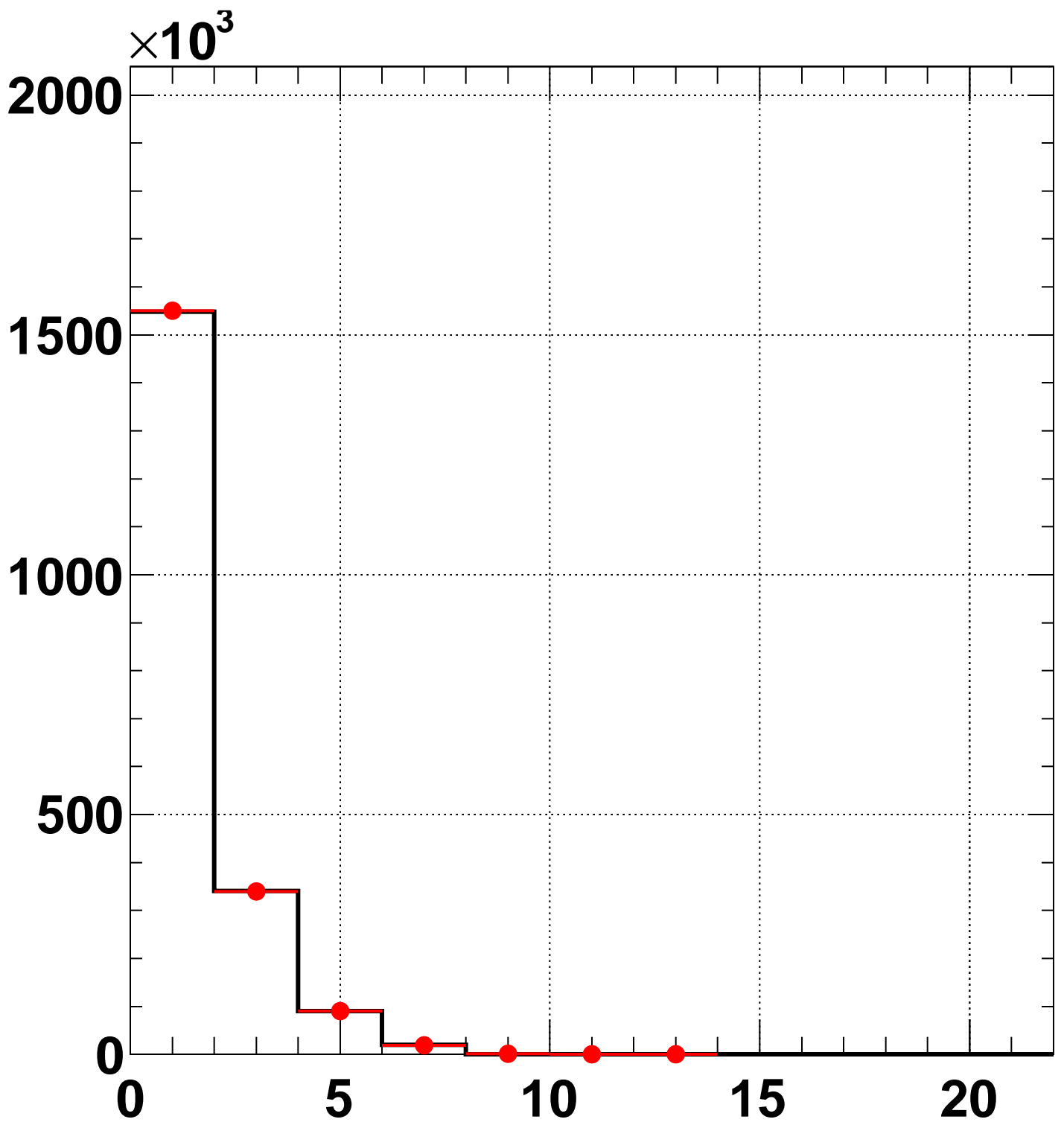


**Final State Hadronic System
Multiplicities and 4-Momenta**

Note:

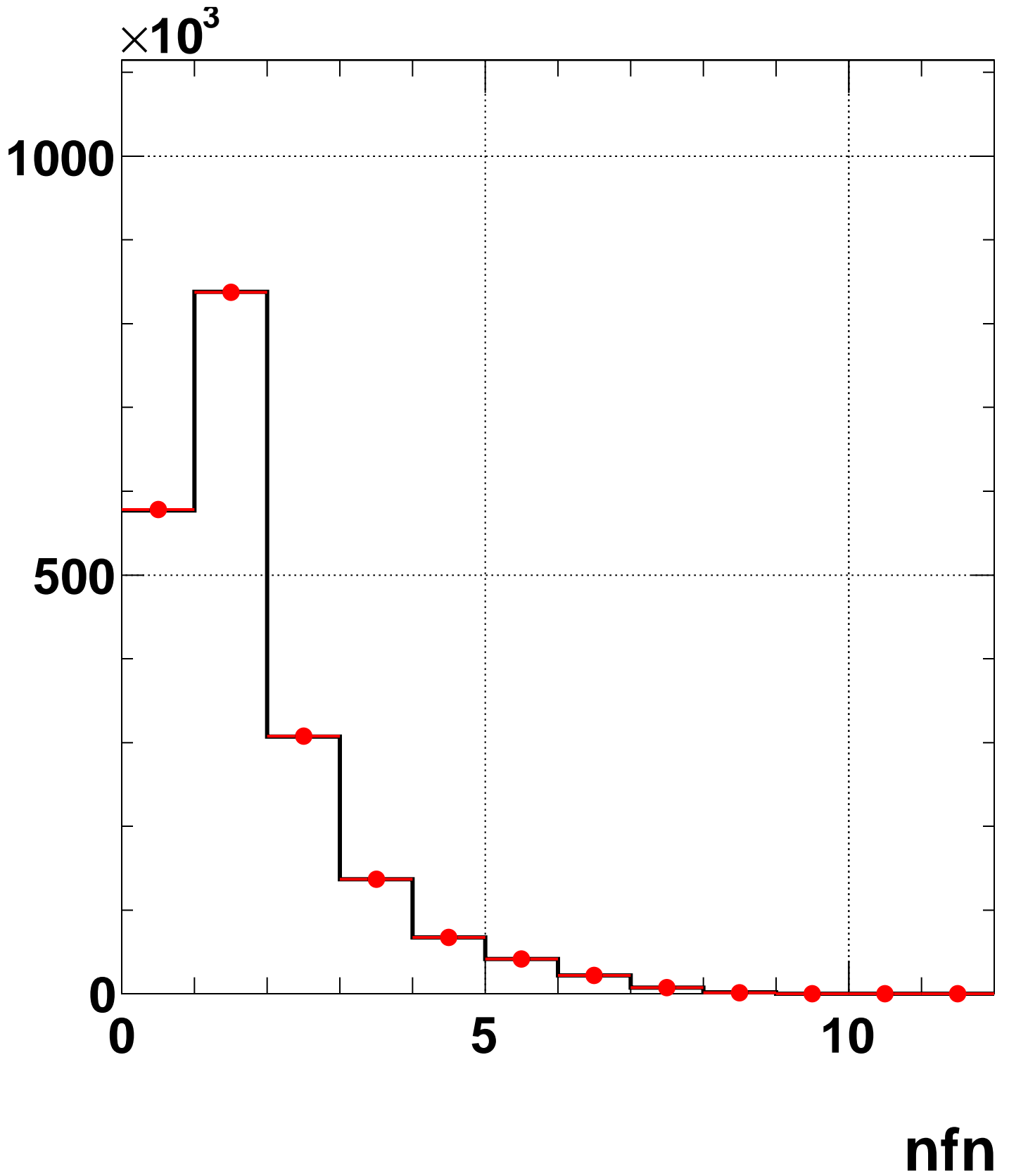
**For nuclear targets these plots include the effect
of intranuclear hadron transport / rescattering**

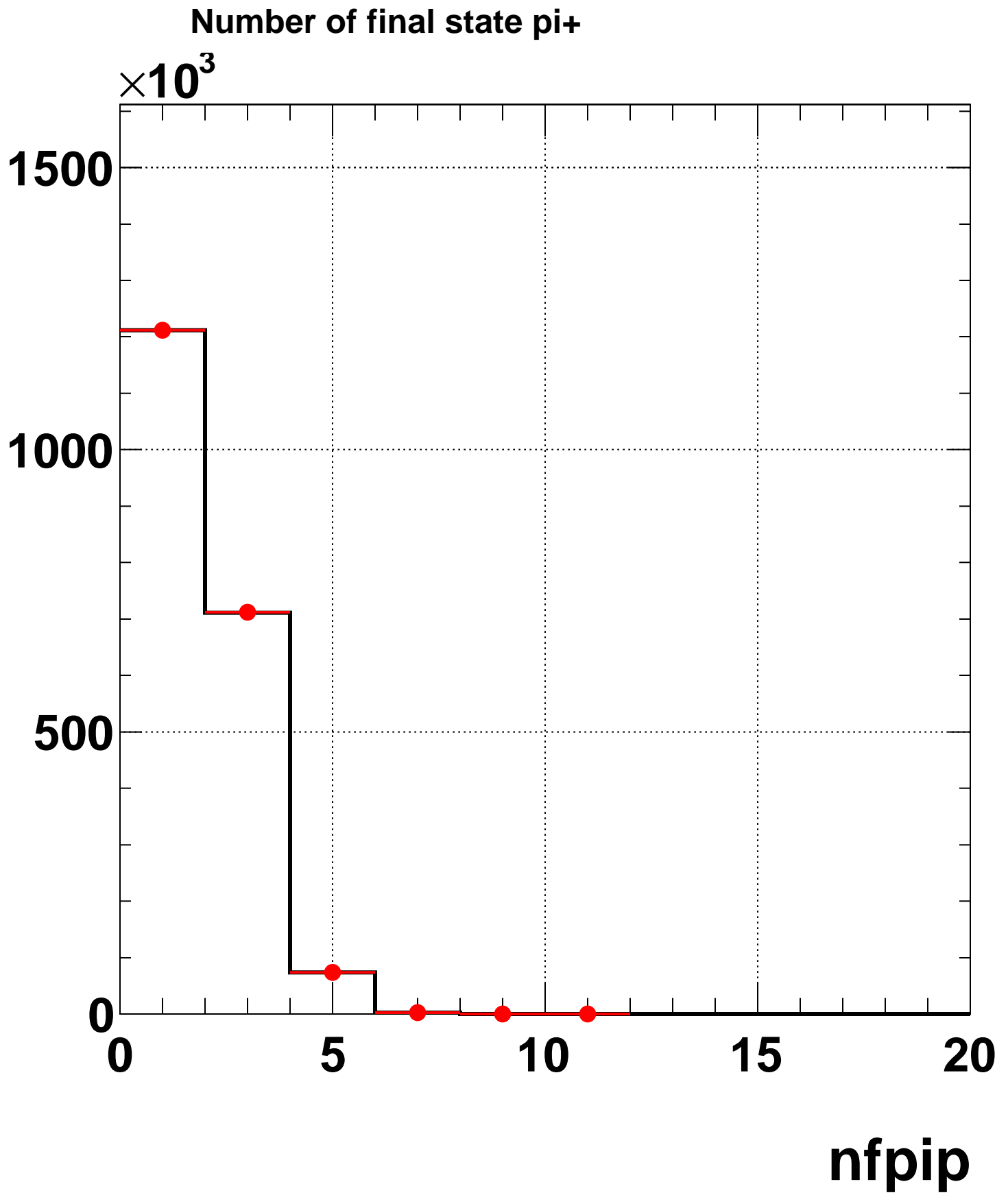
Number of final state protons

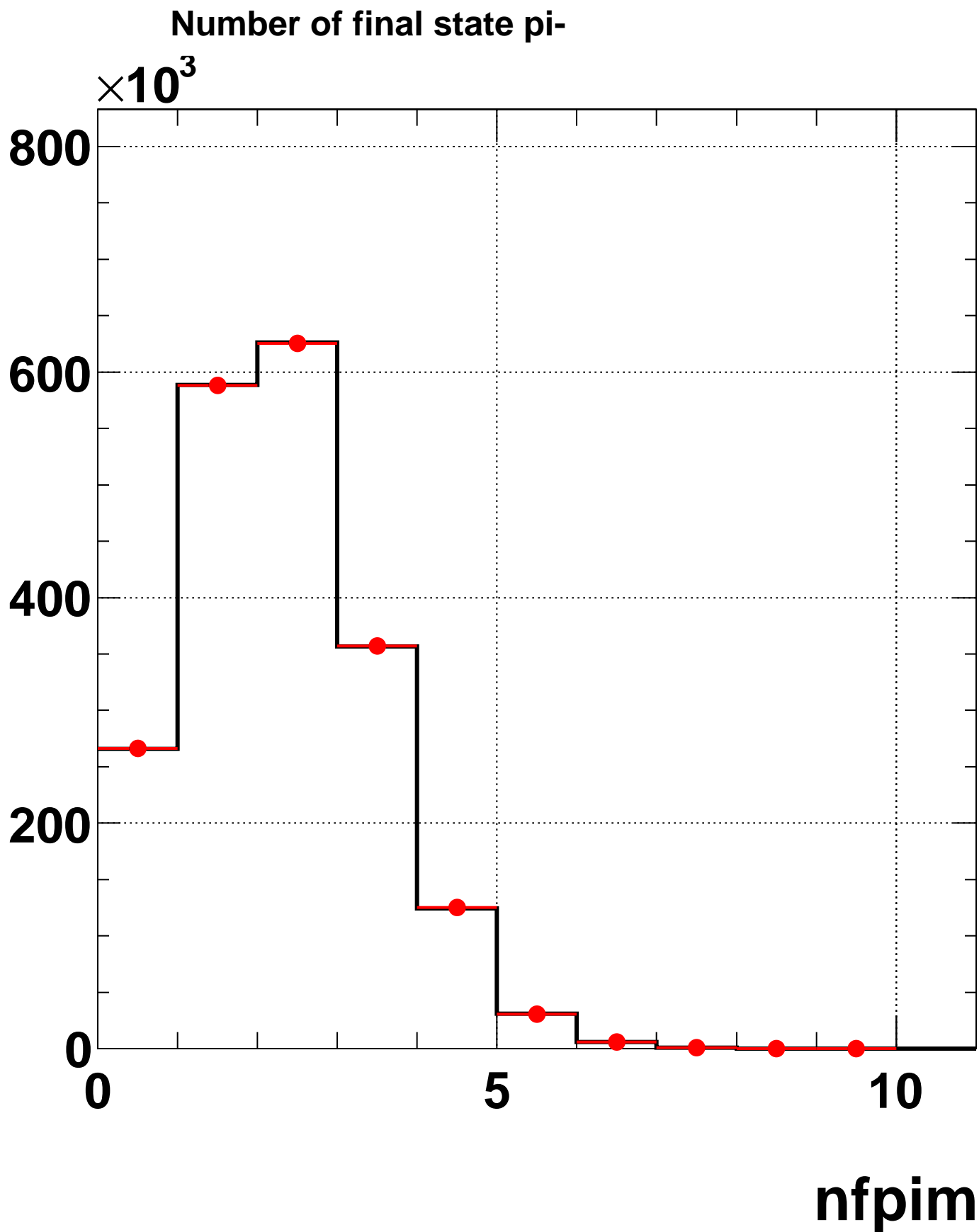


nfp

Number of final state neutrons

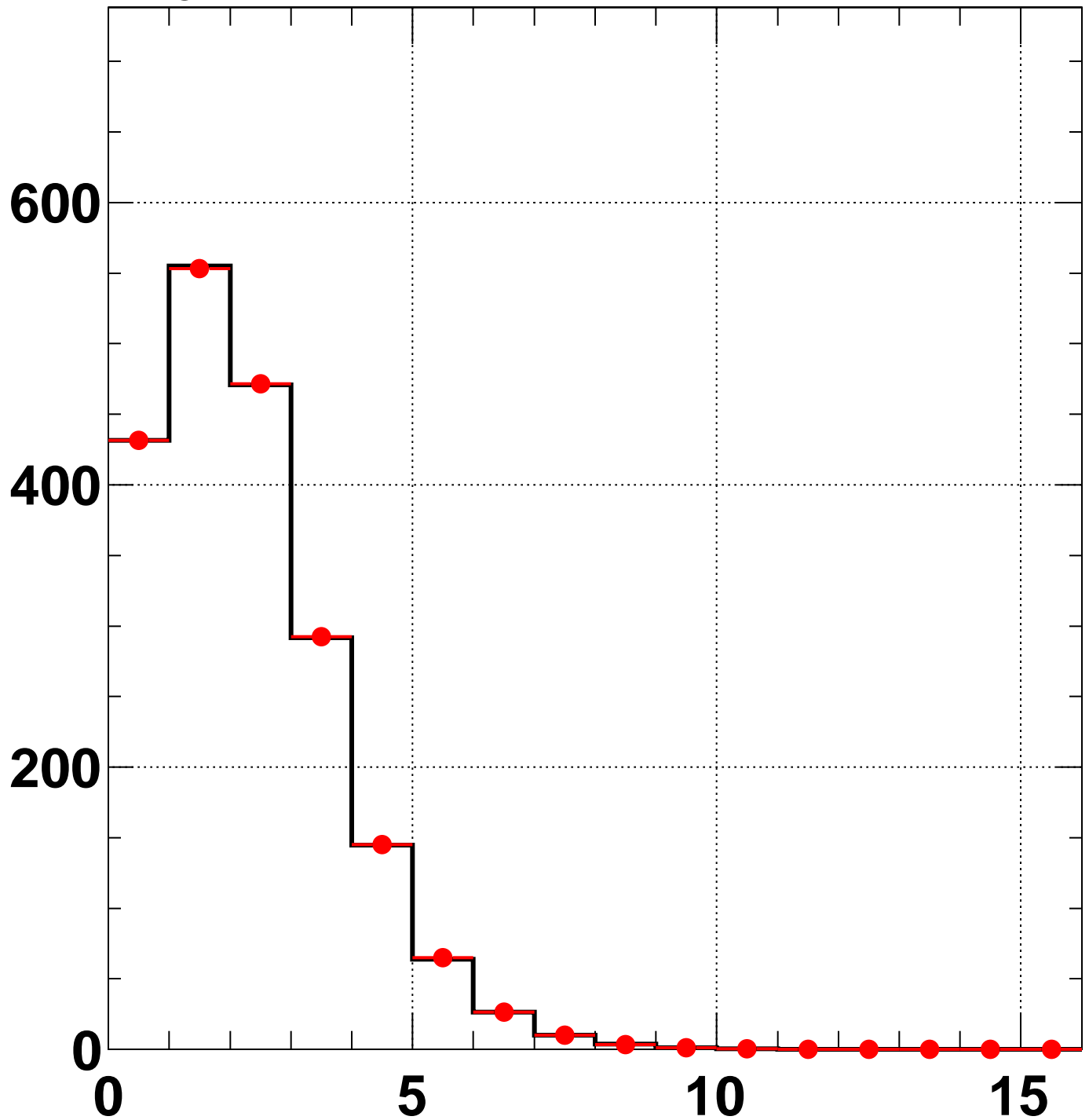






Number of final state pi0

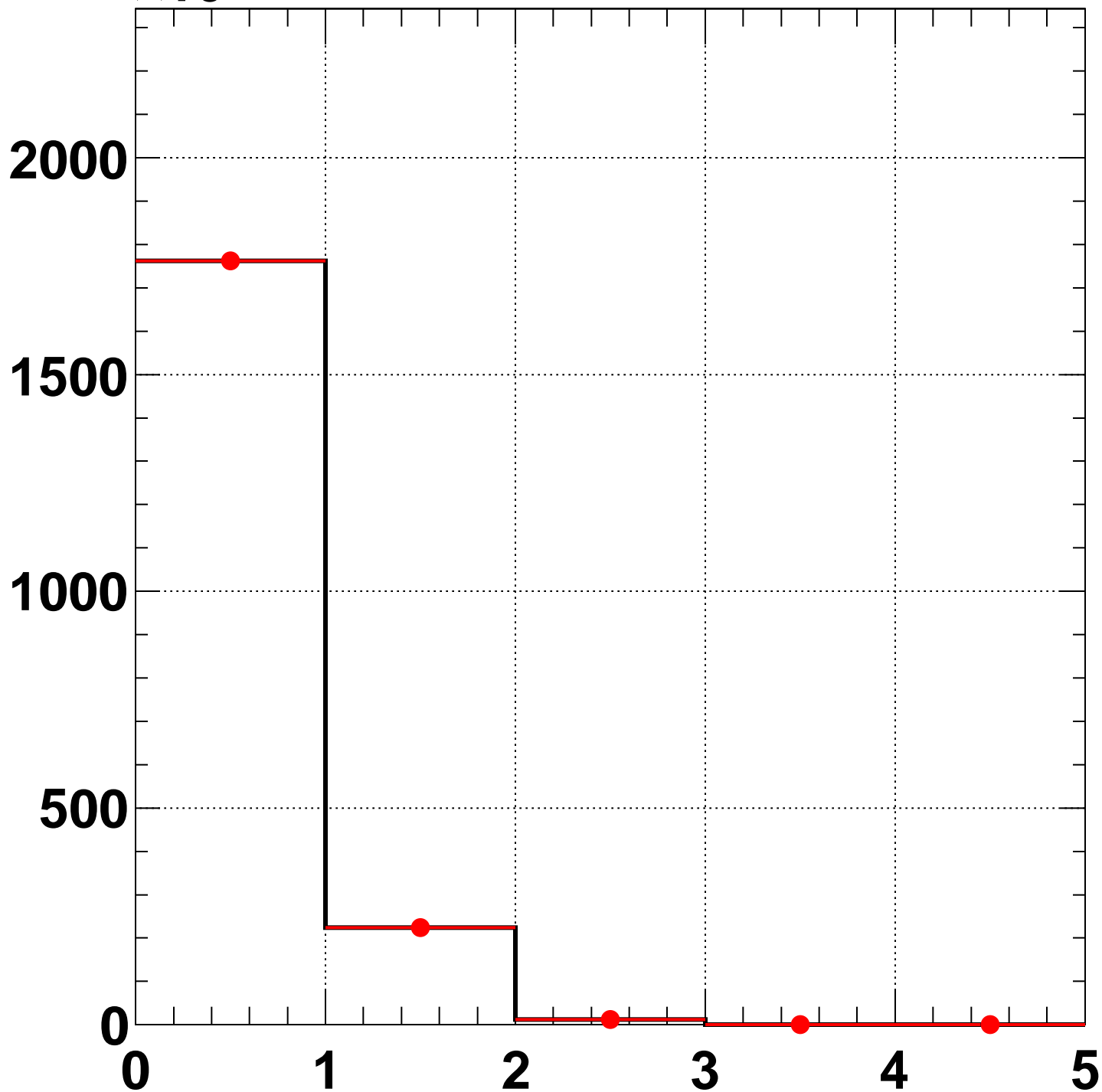
$\times 10^3$



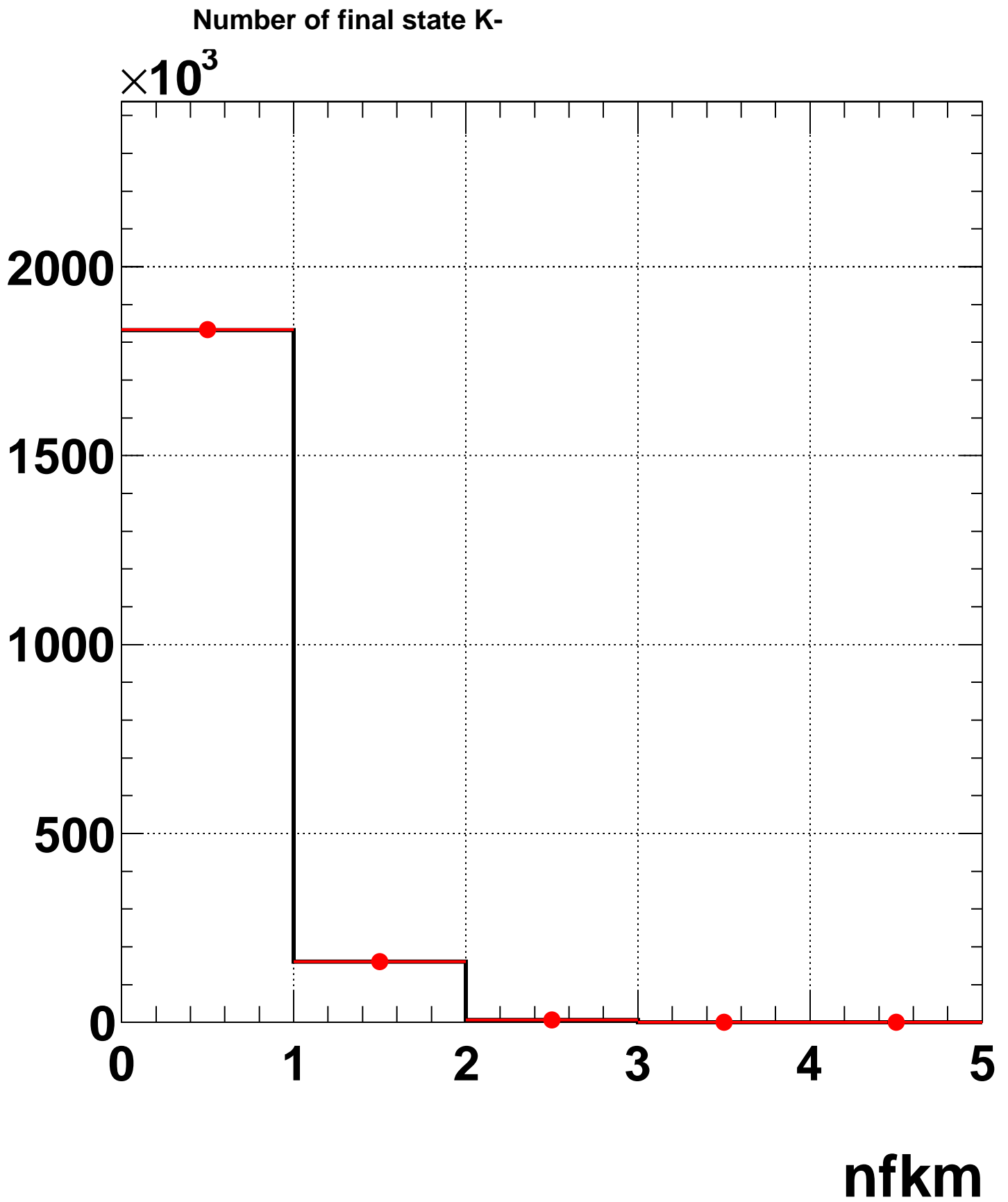
nfpi0

Number of final state K+

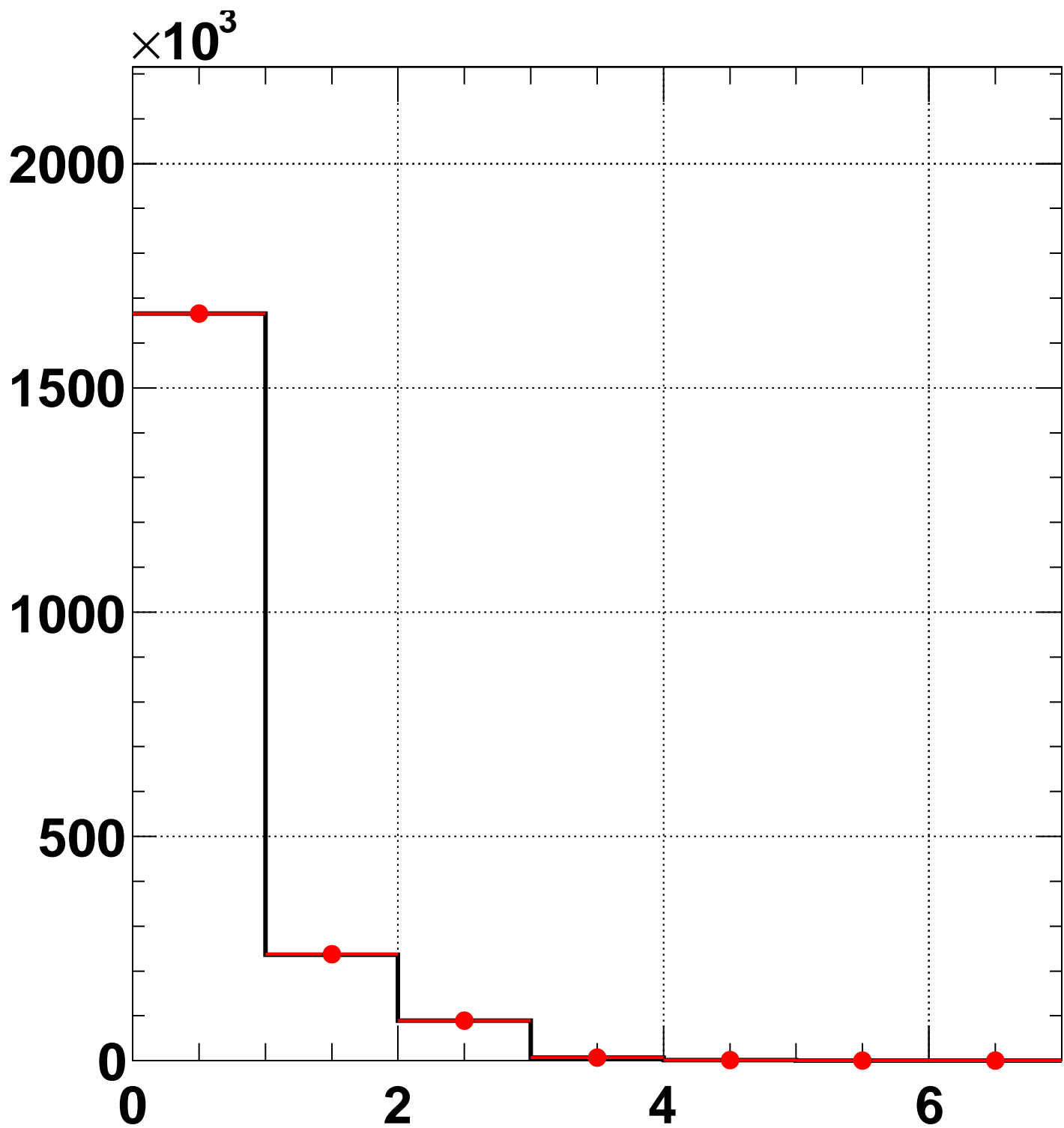
$\times 10^3$



n_{fkp}

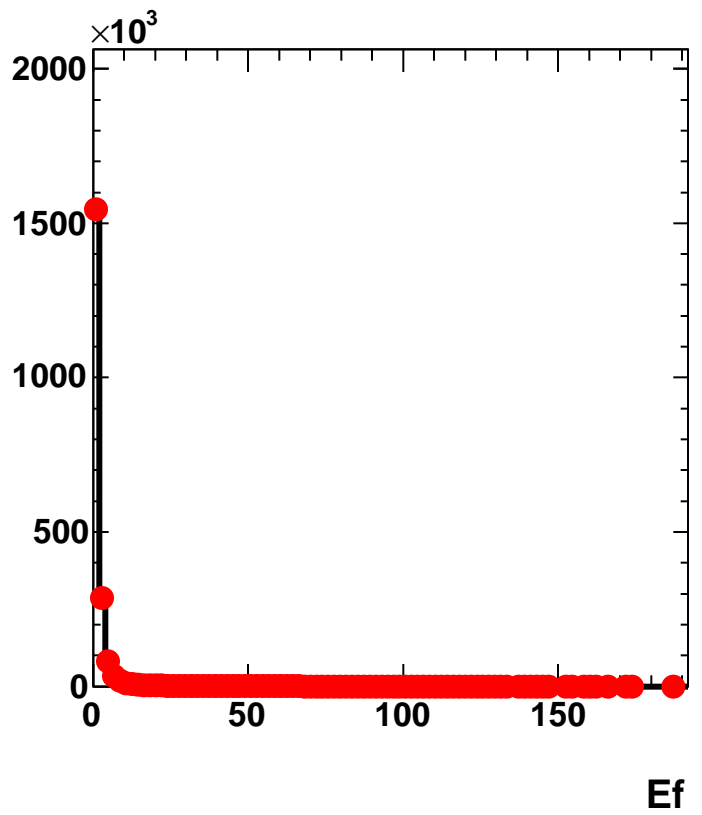
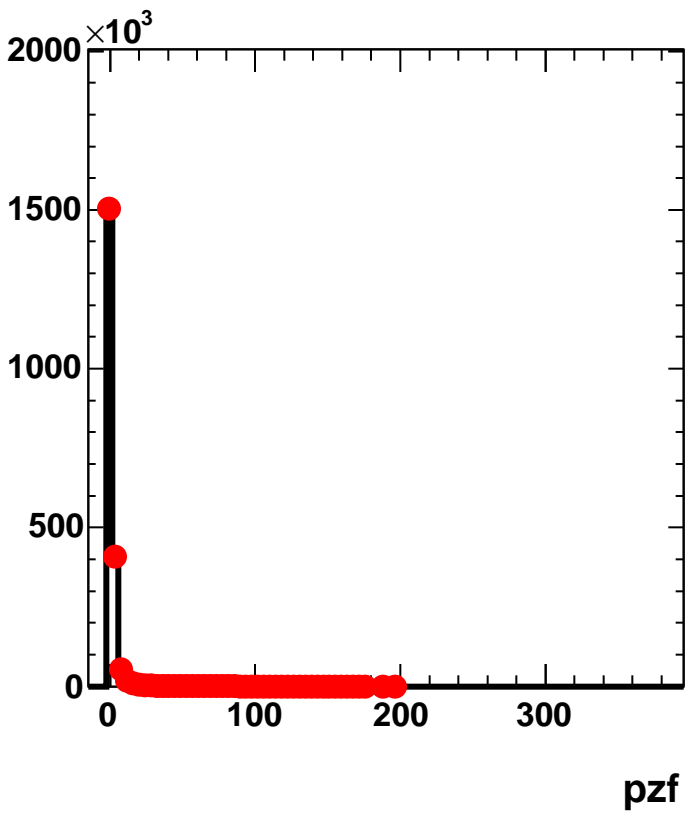
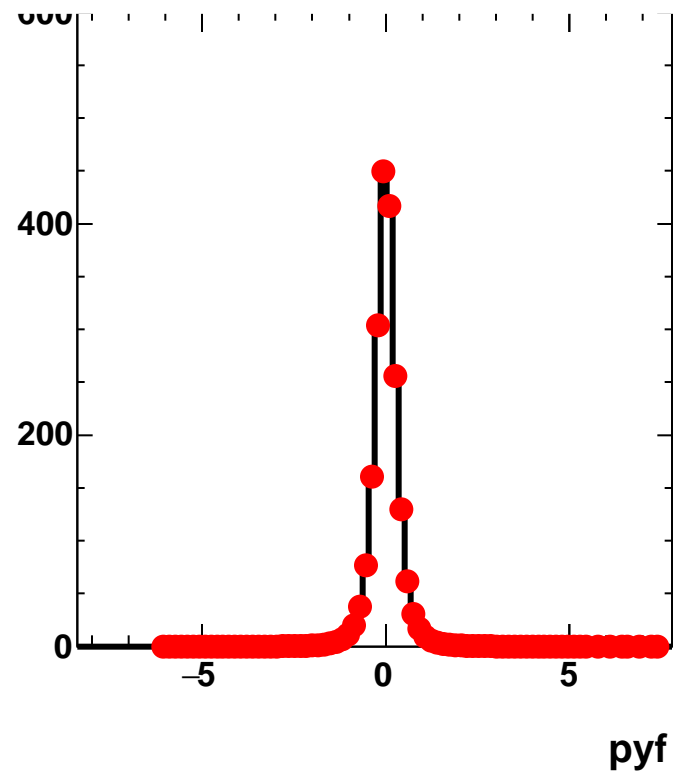
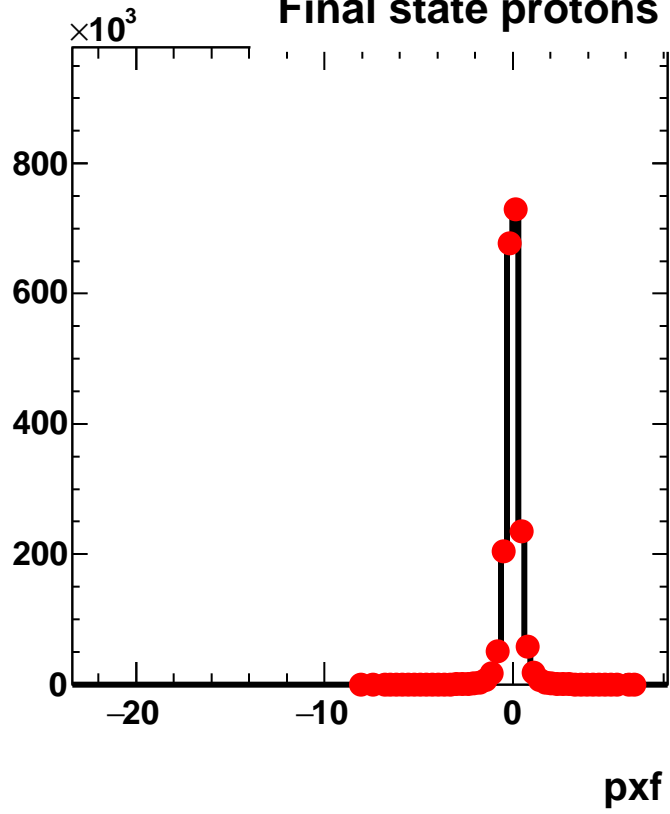


Number of final state K0

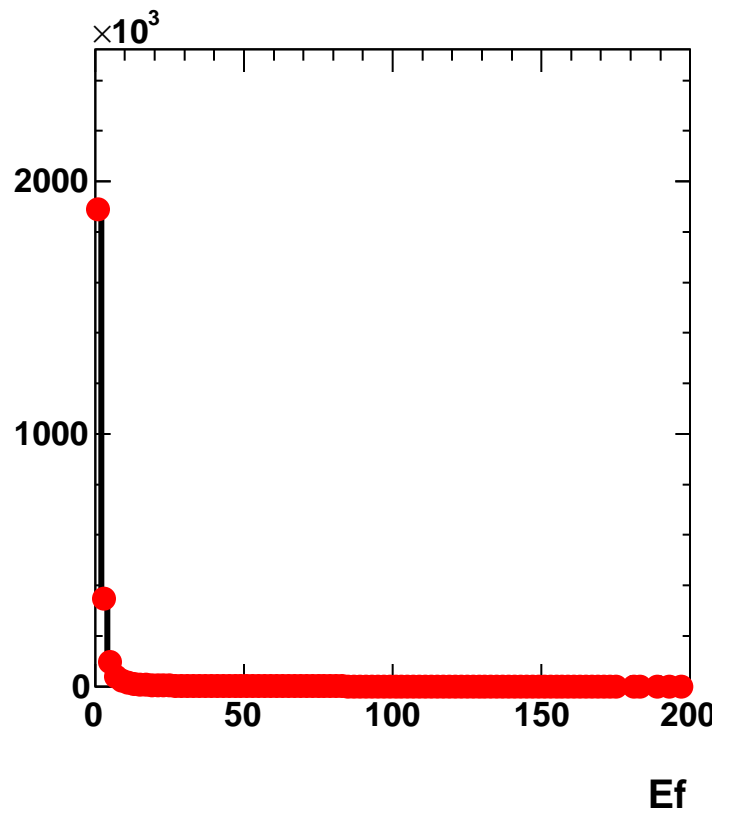
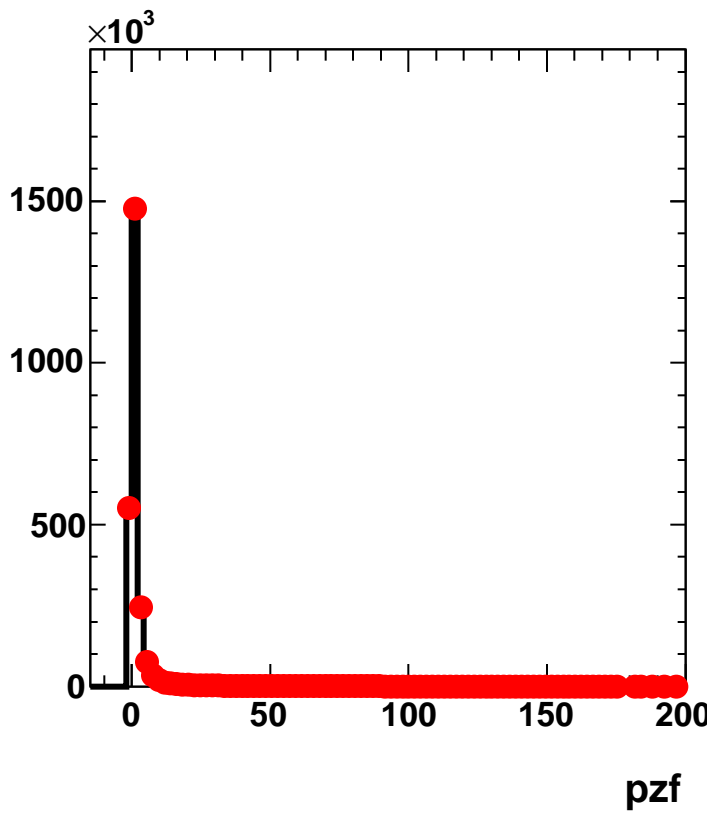
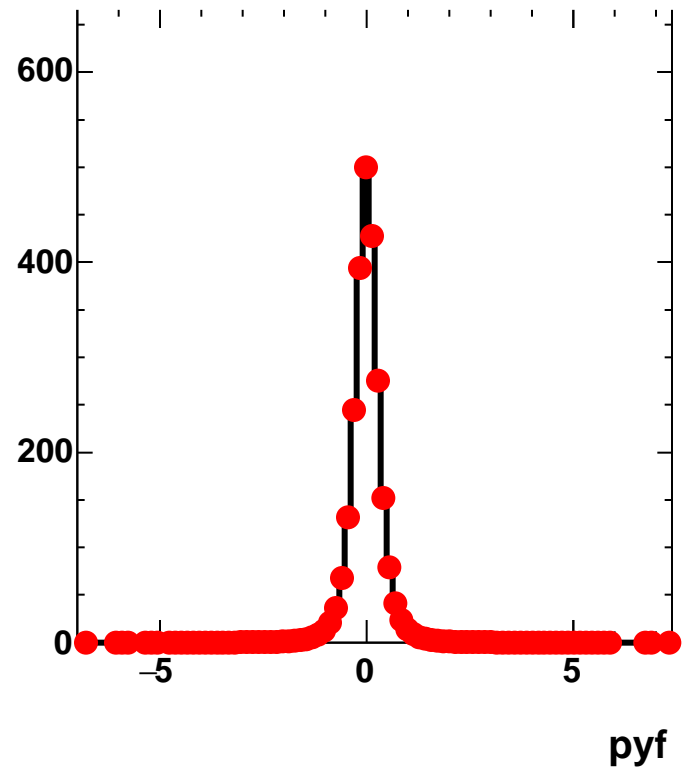
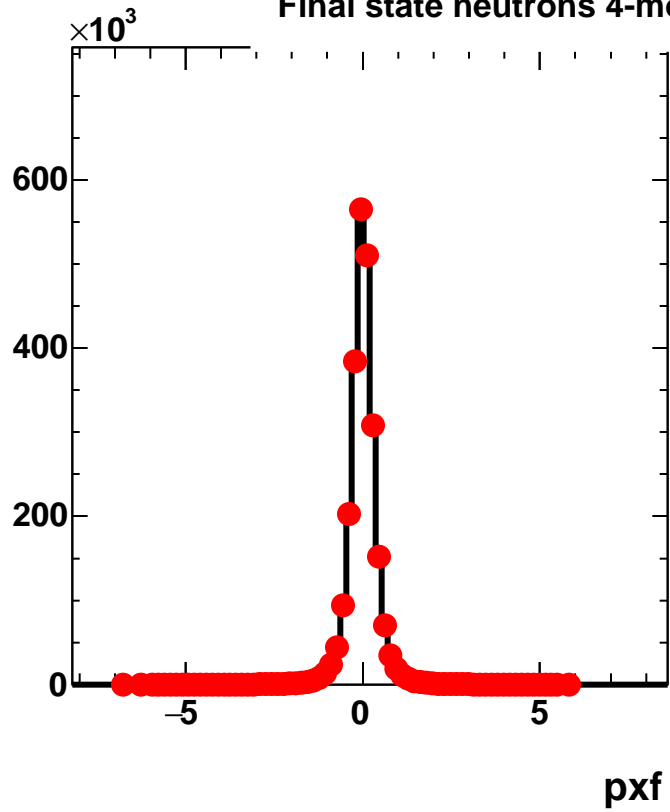


nfk0

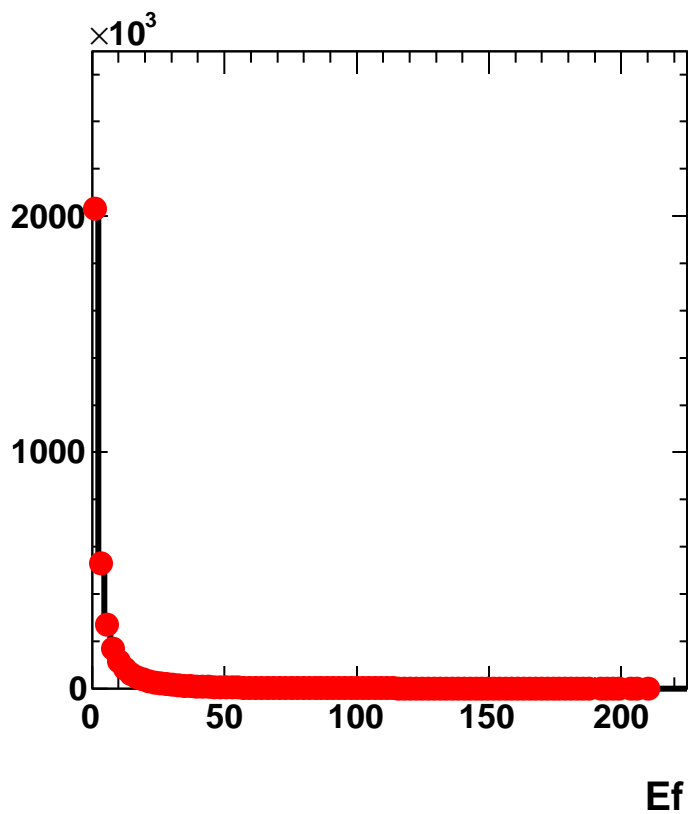
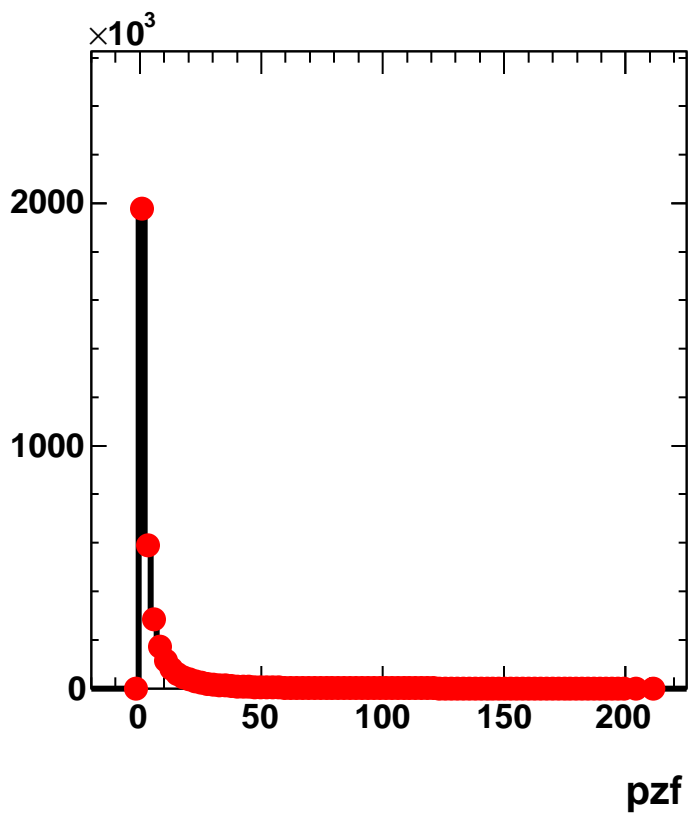
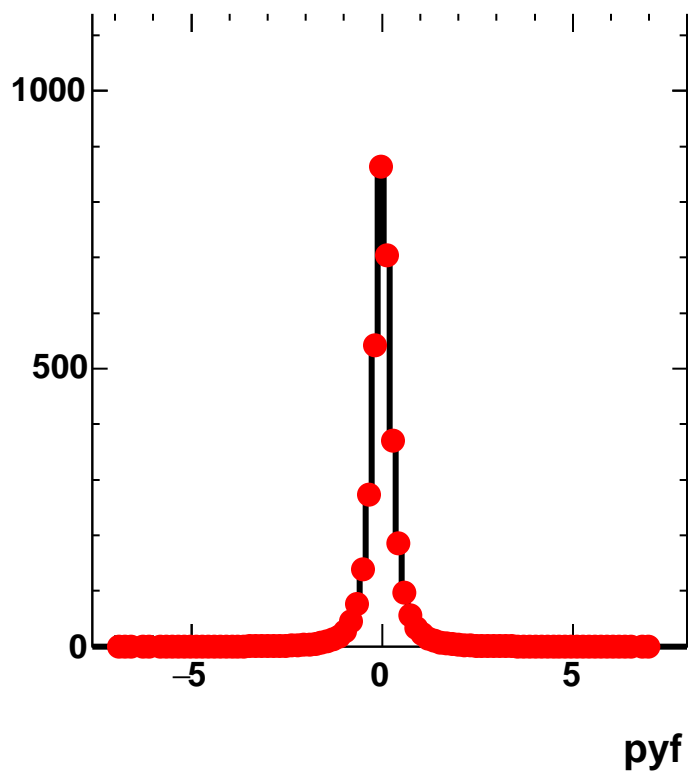
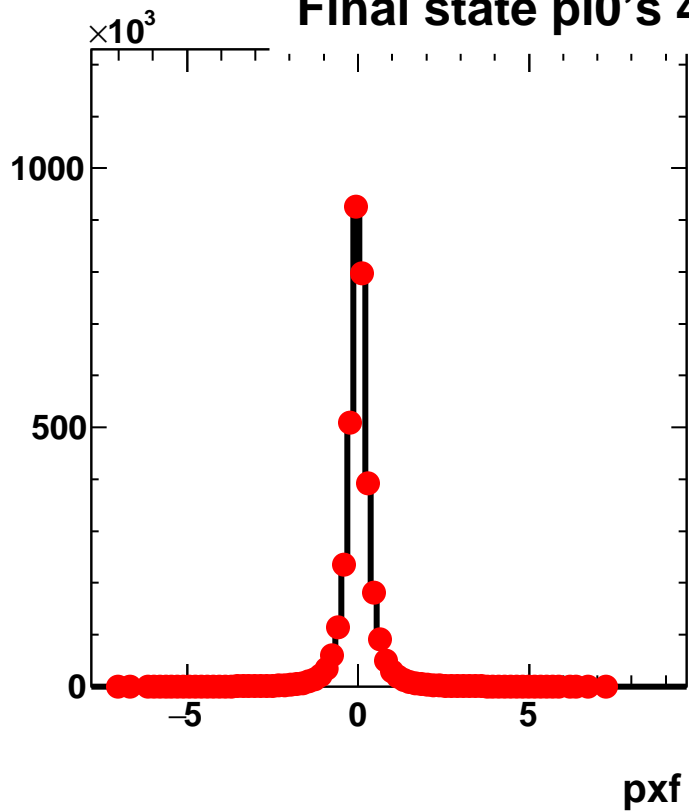
Final state protons 4-momentum



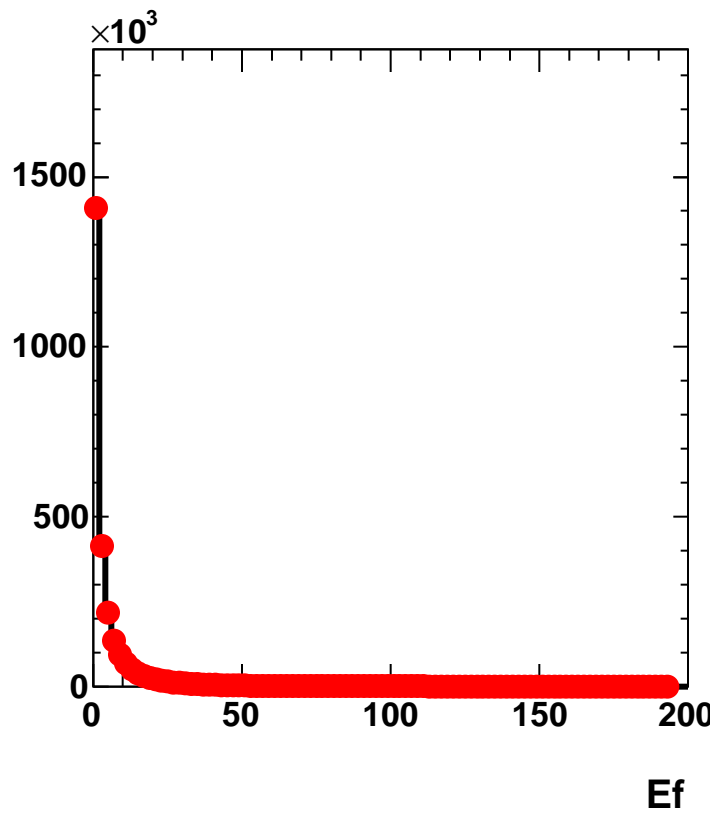
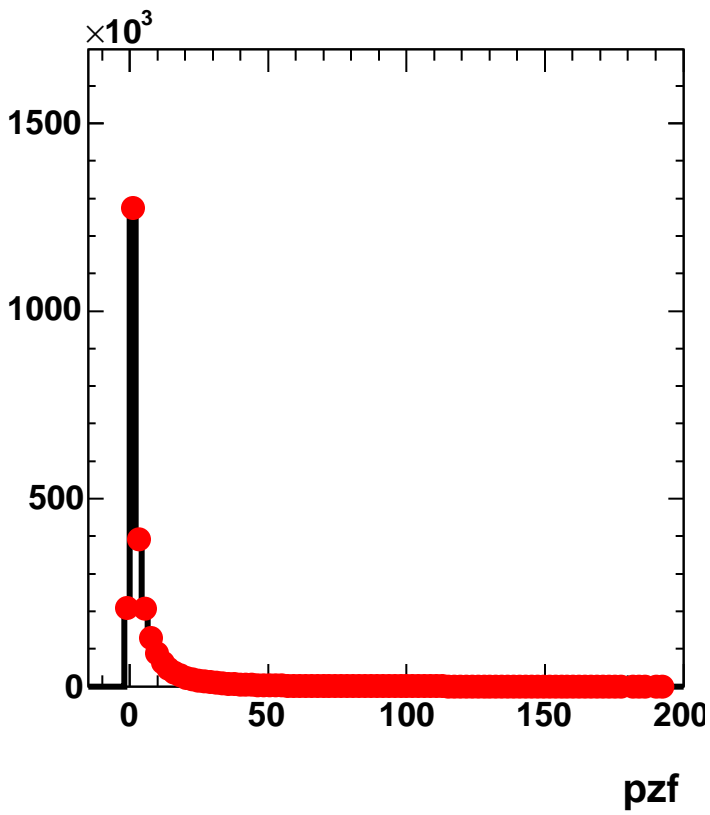
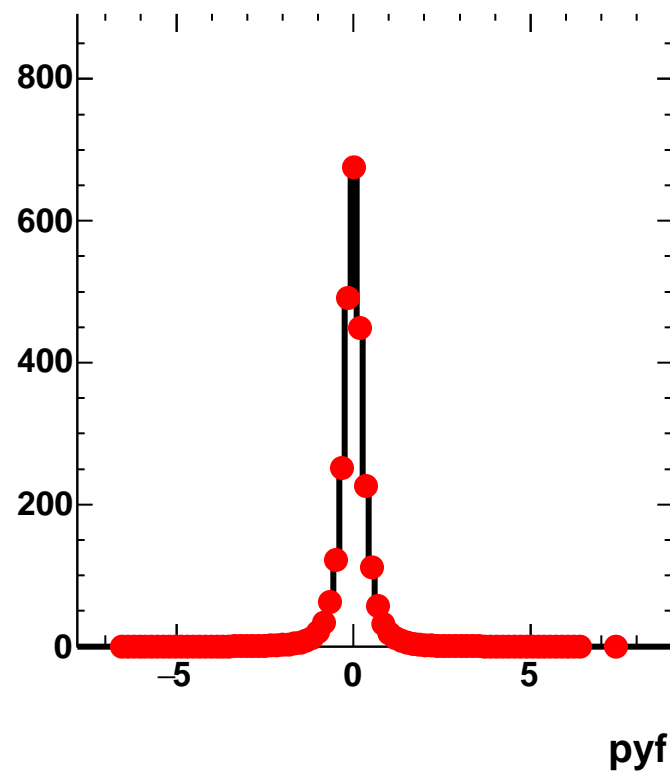
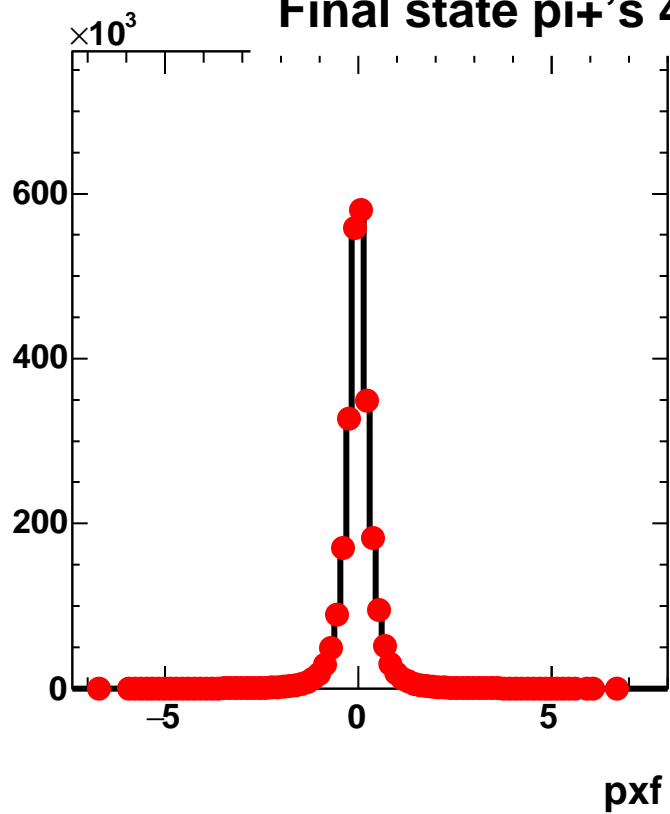
Final state neutrons 4-momentum



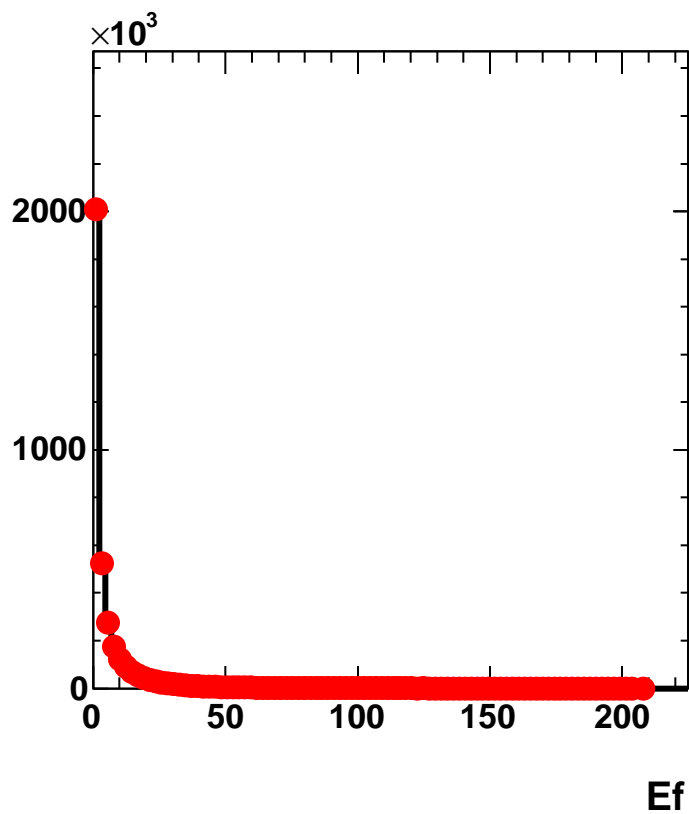
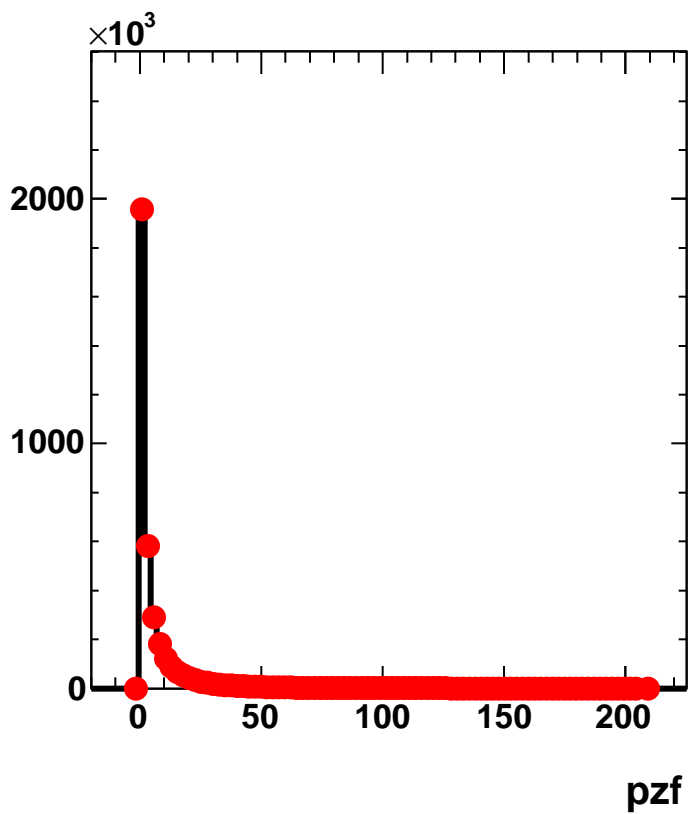
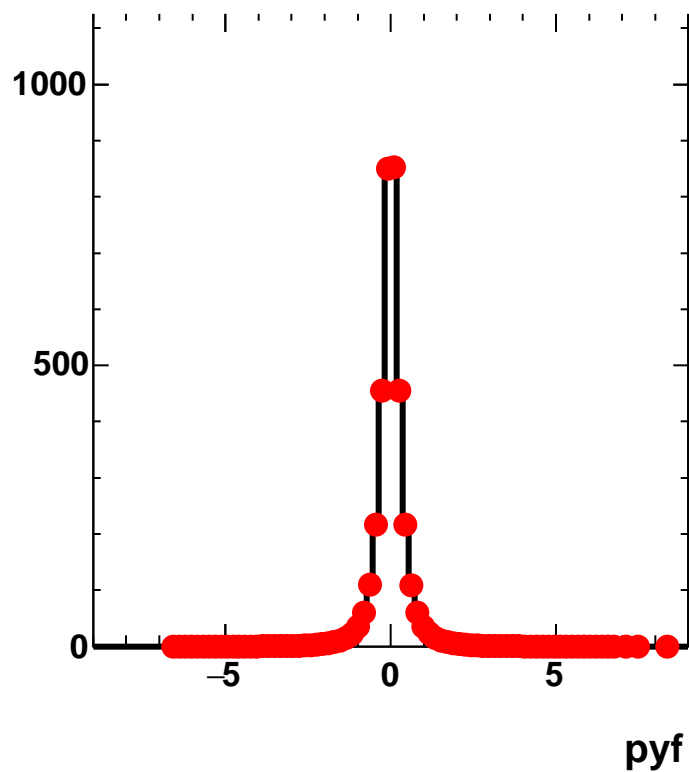
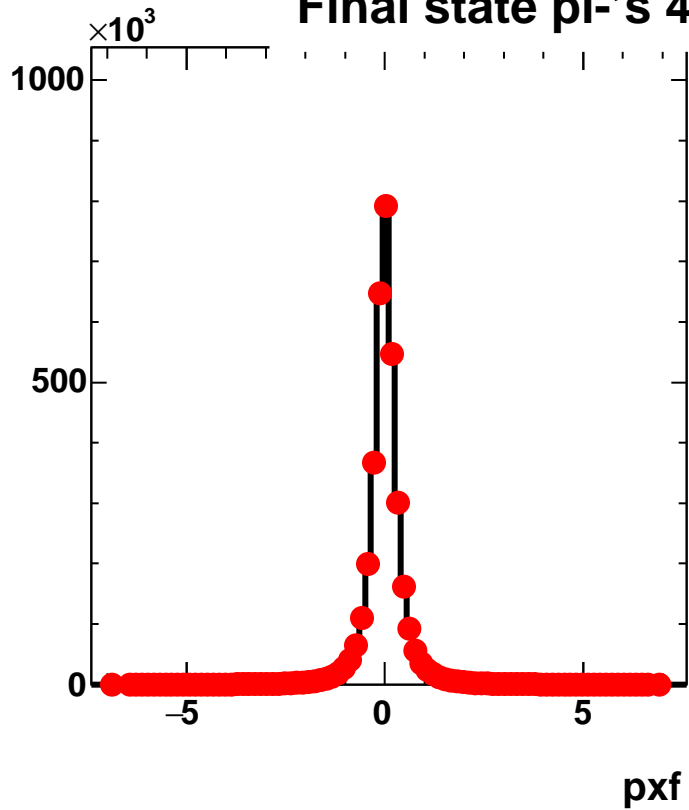
Final state pi0's 4-momentum



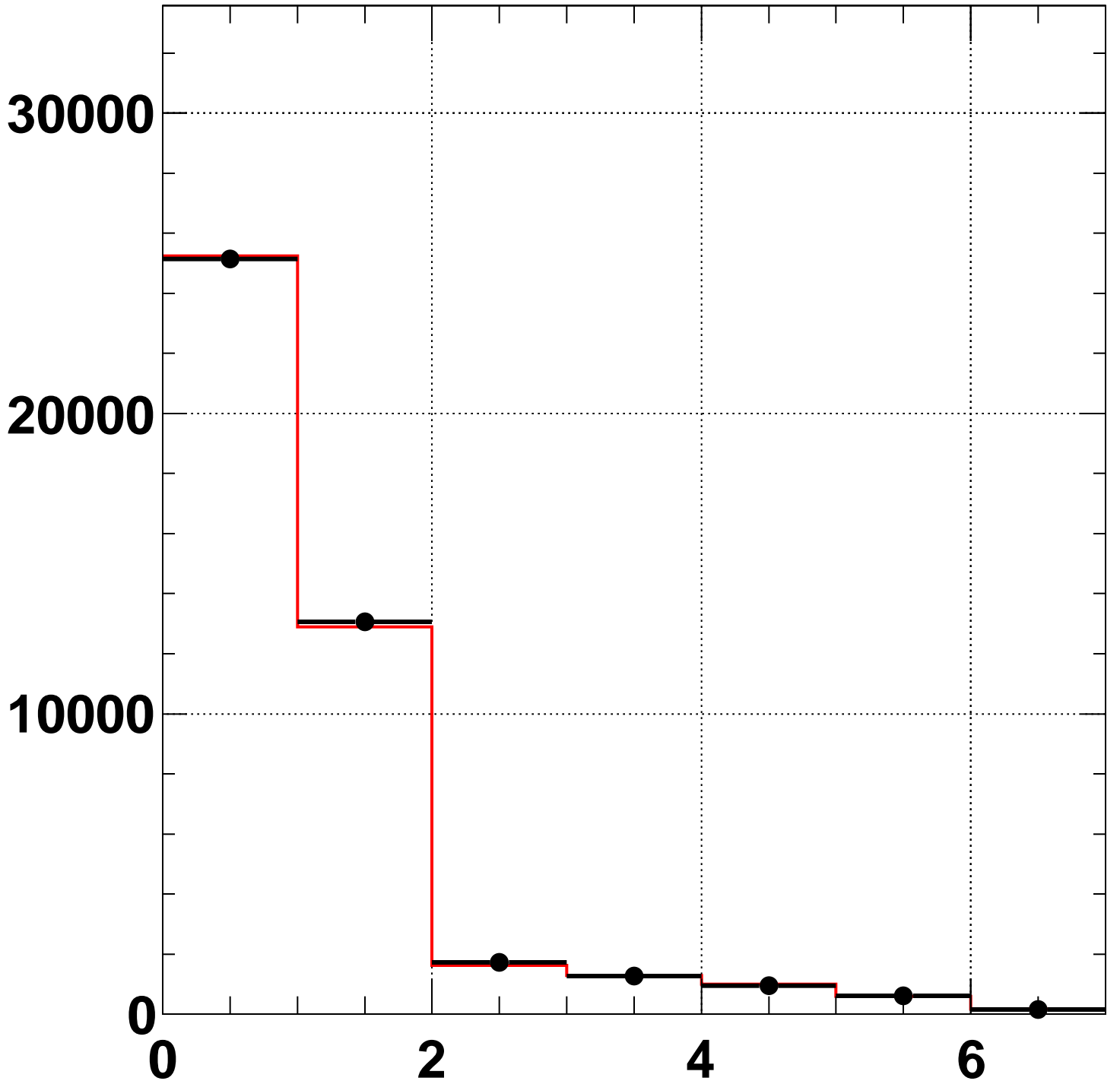
Final state pi+'s 4-momentum



Final state pi-'s 4-momentum

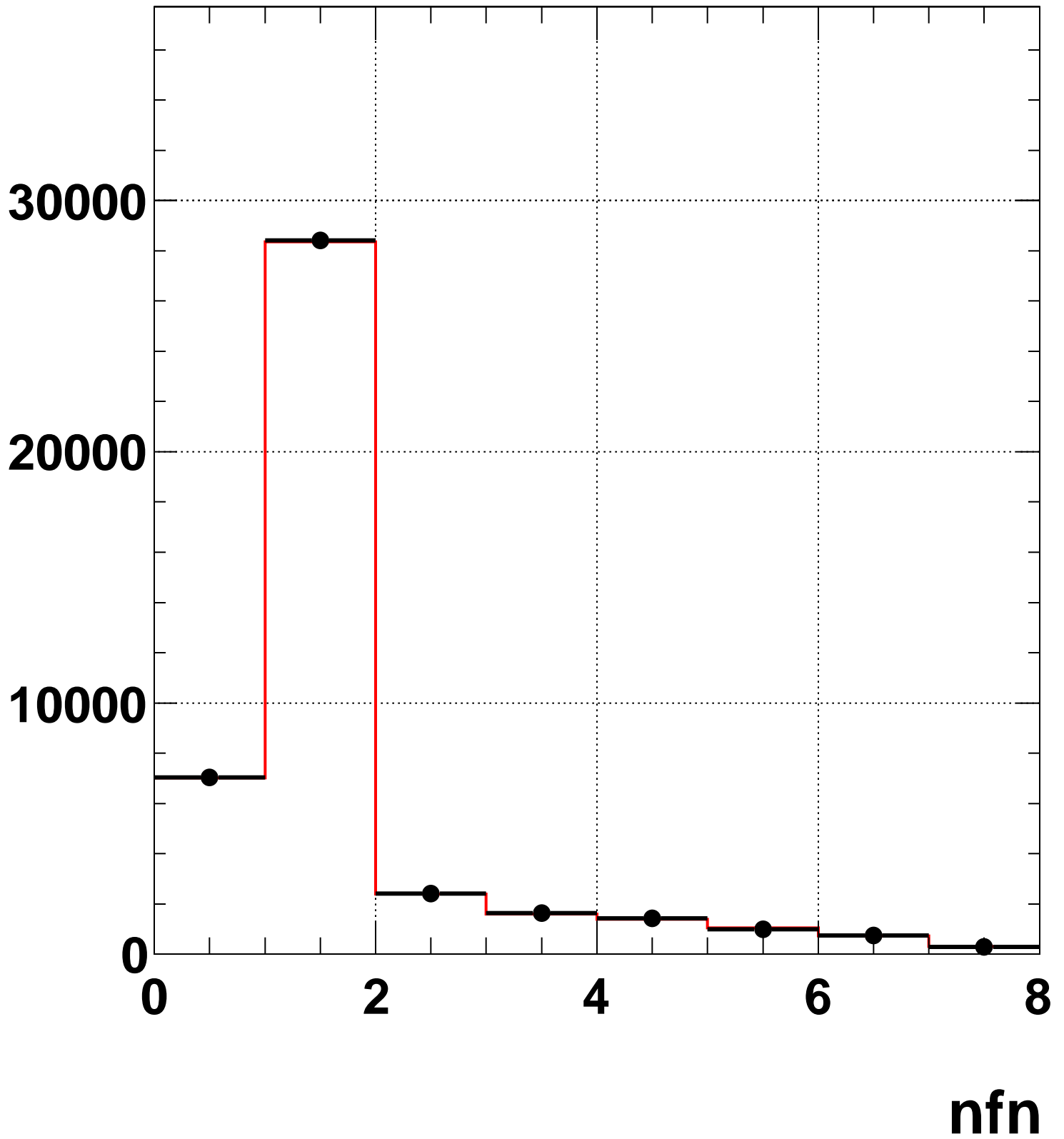


Number of final state protons / QEL only

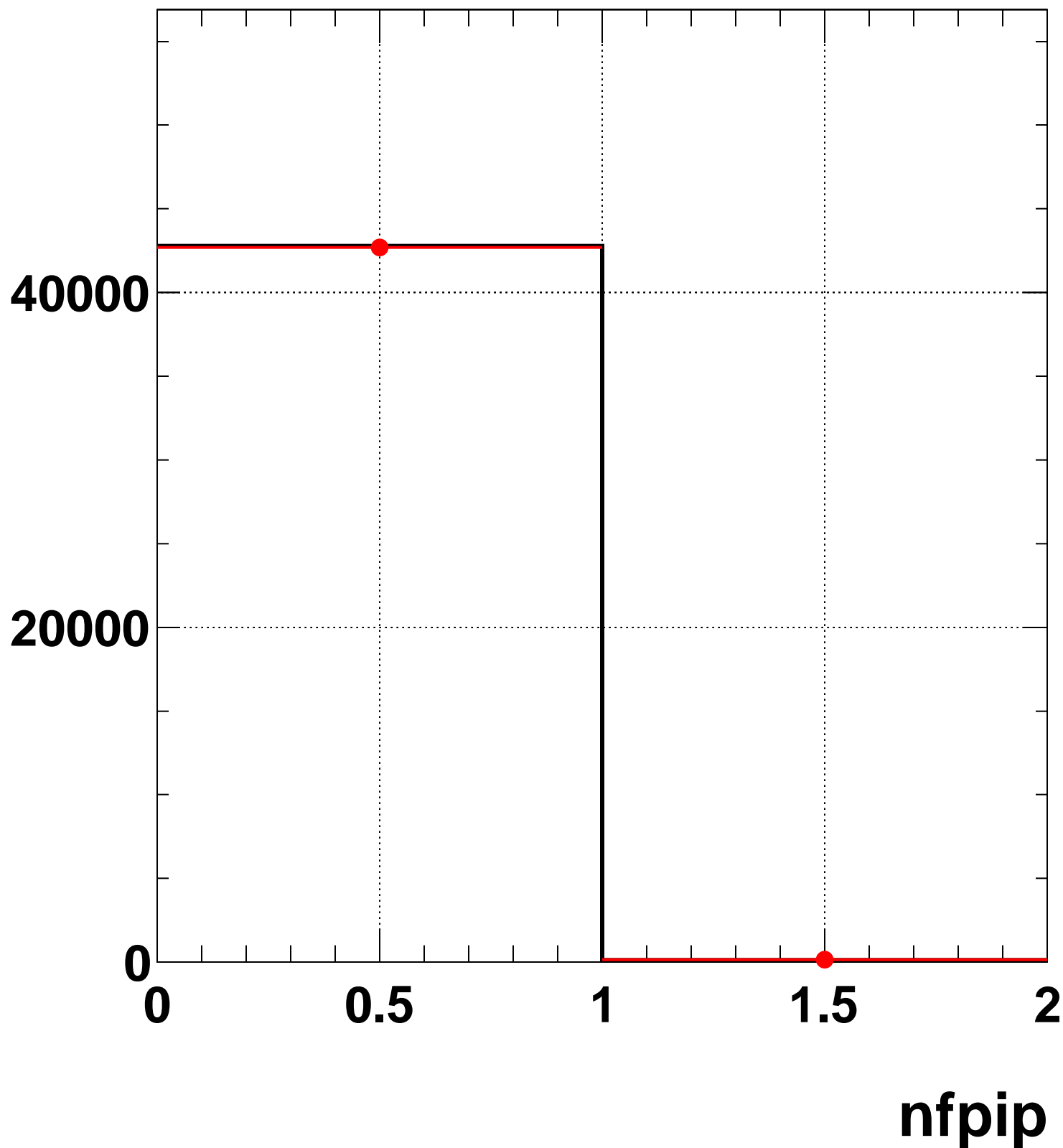


nfp

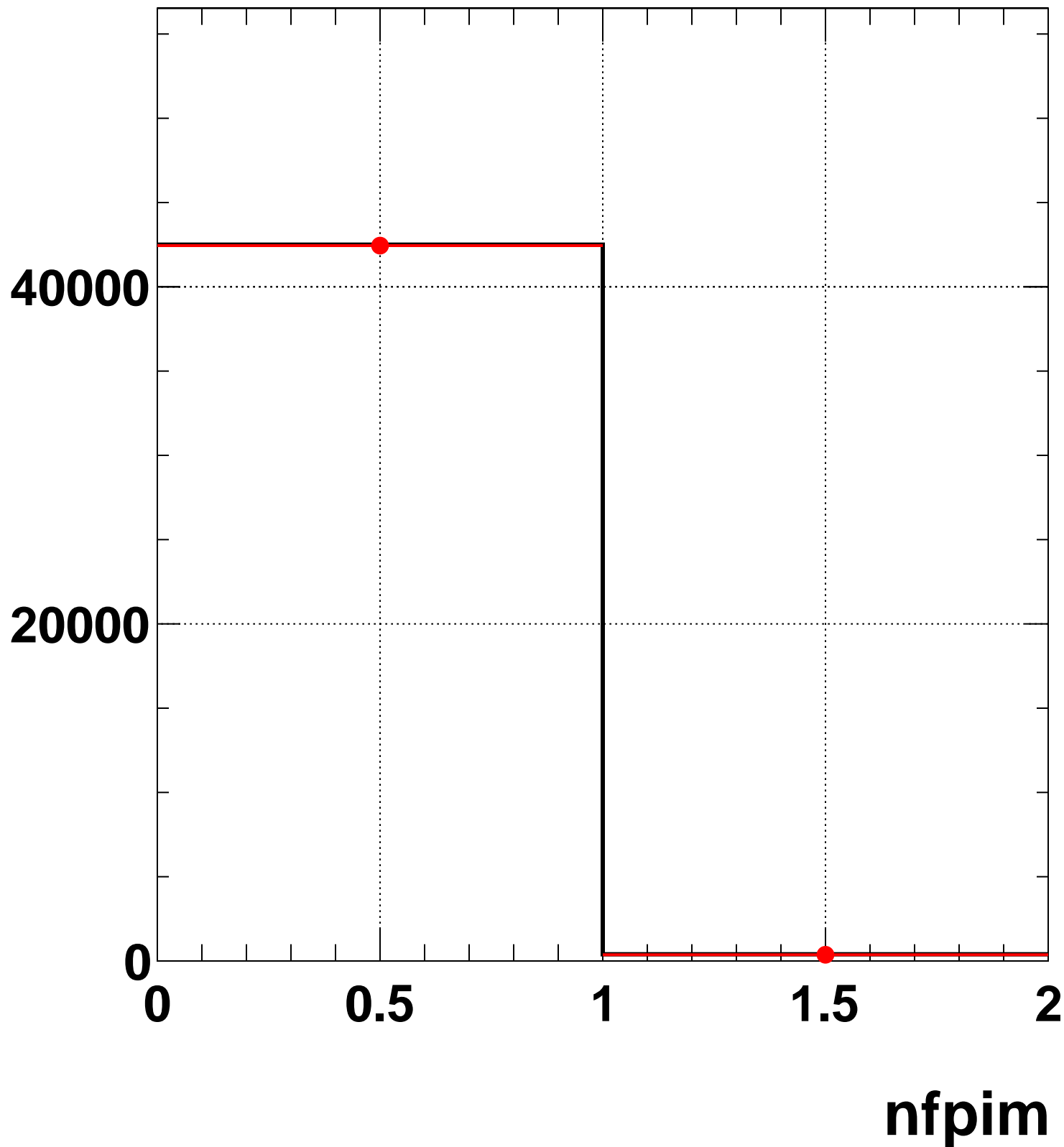
Number of final state neutrons / QEL only



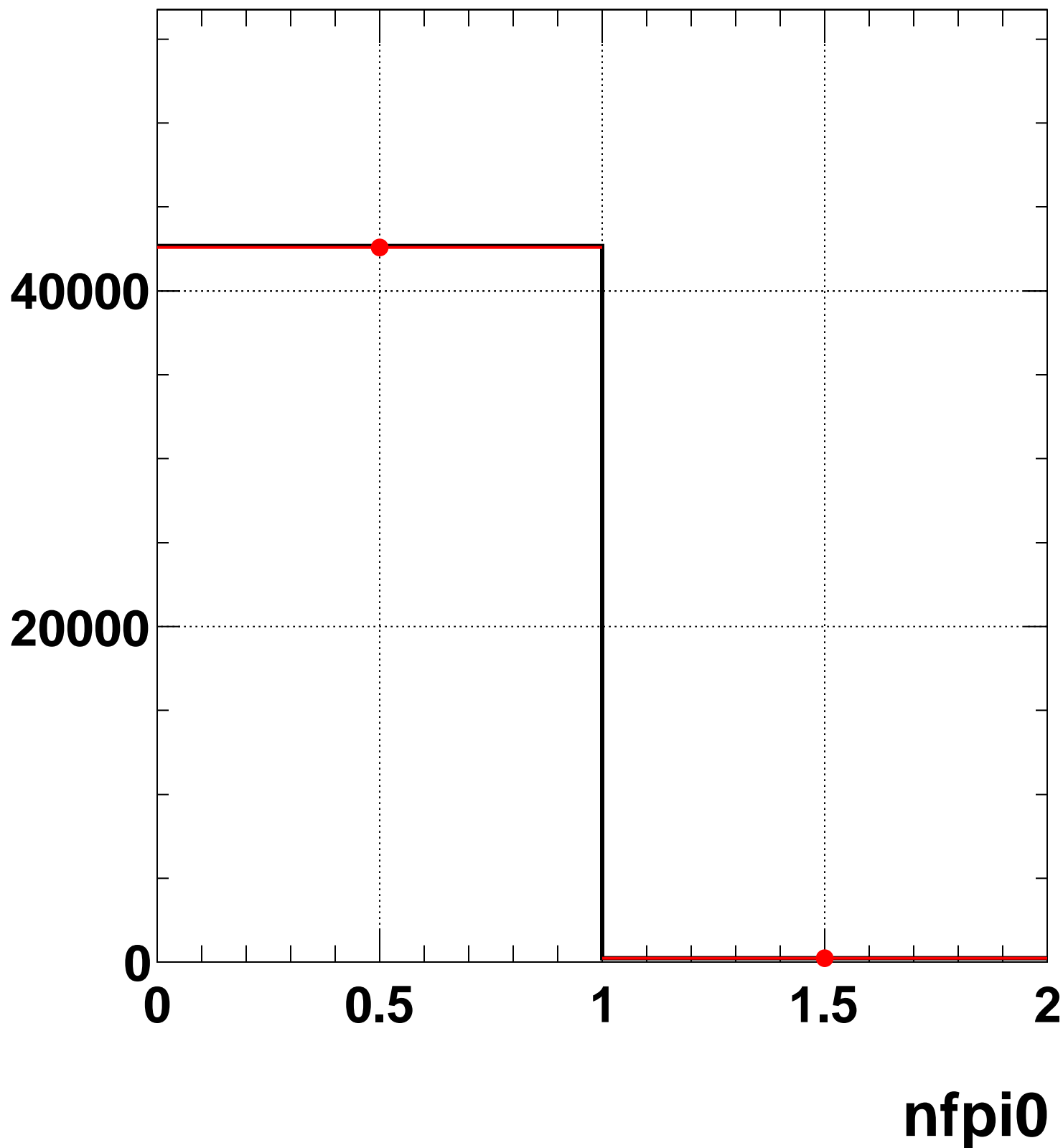
Number of final state pi+ / QEL only



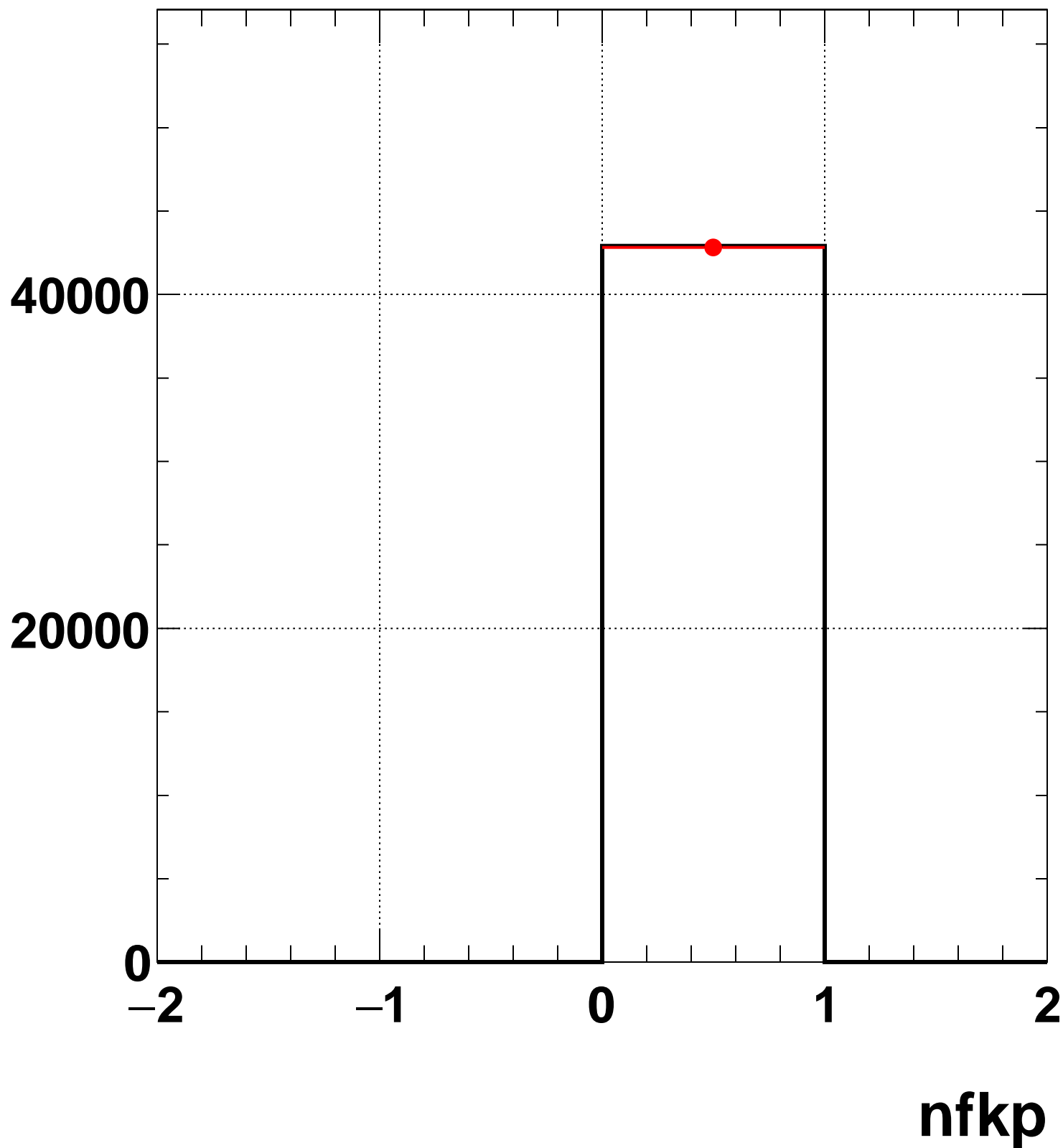
Number of final state pi- / QEL only



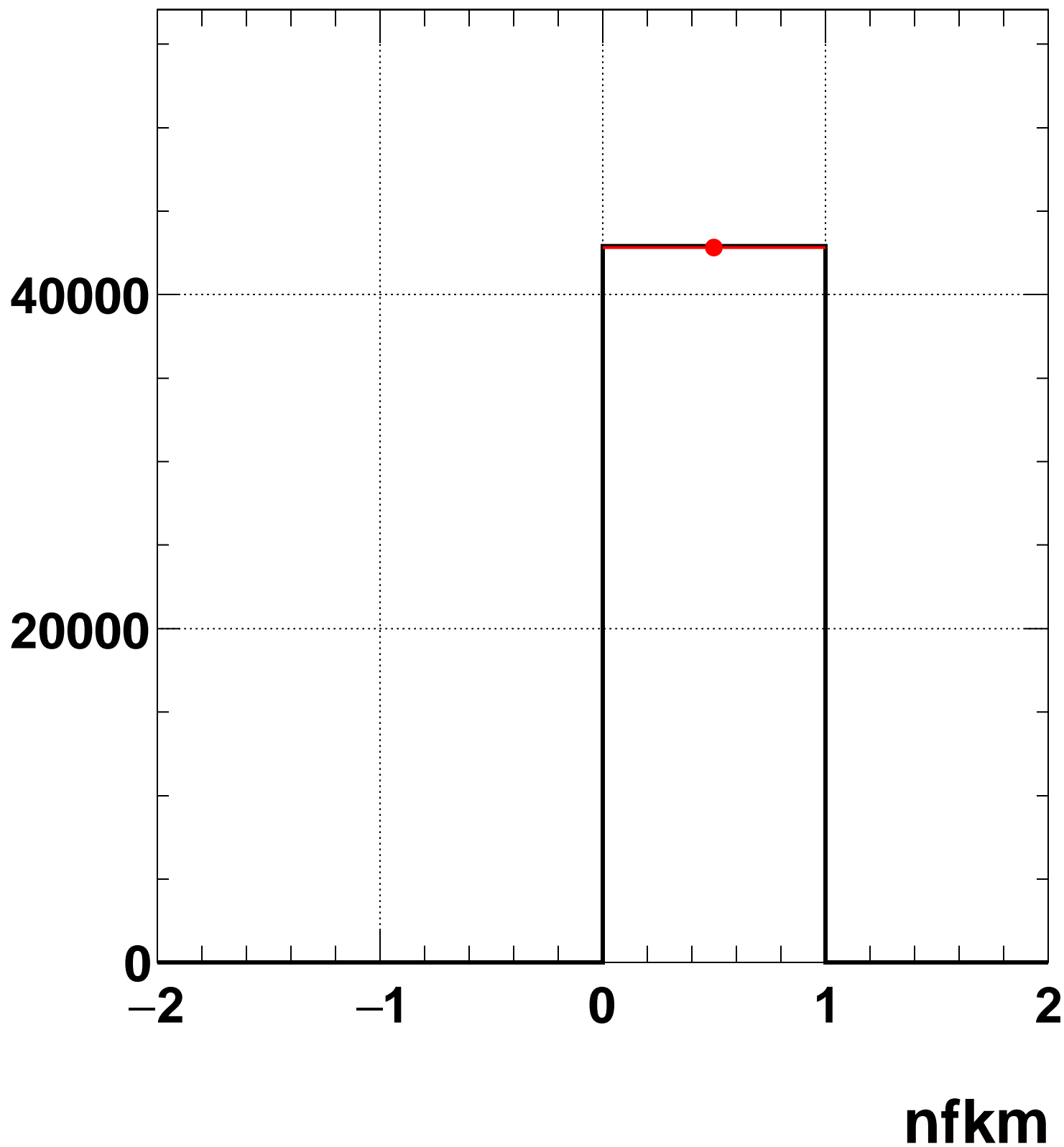
Number of final state pi0 / QEL only



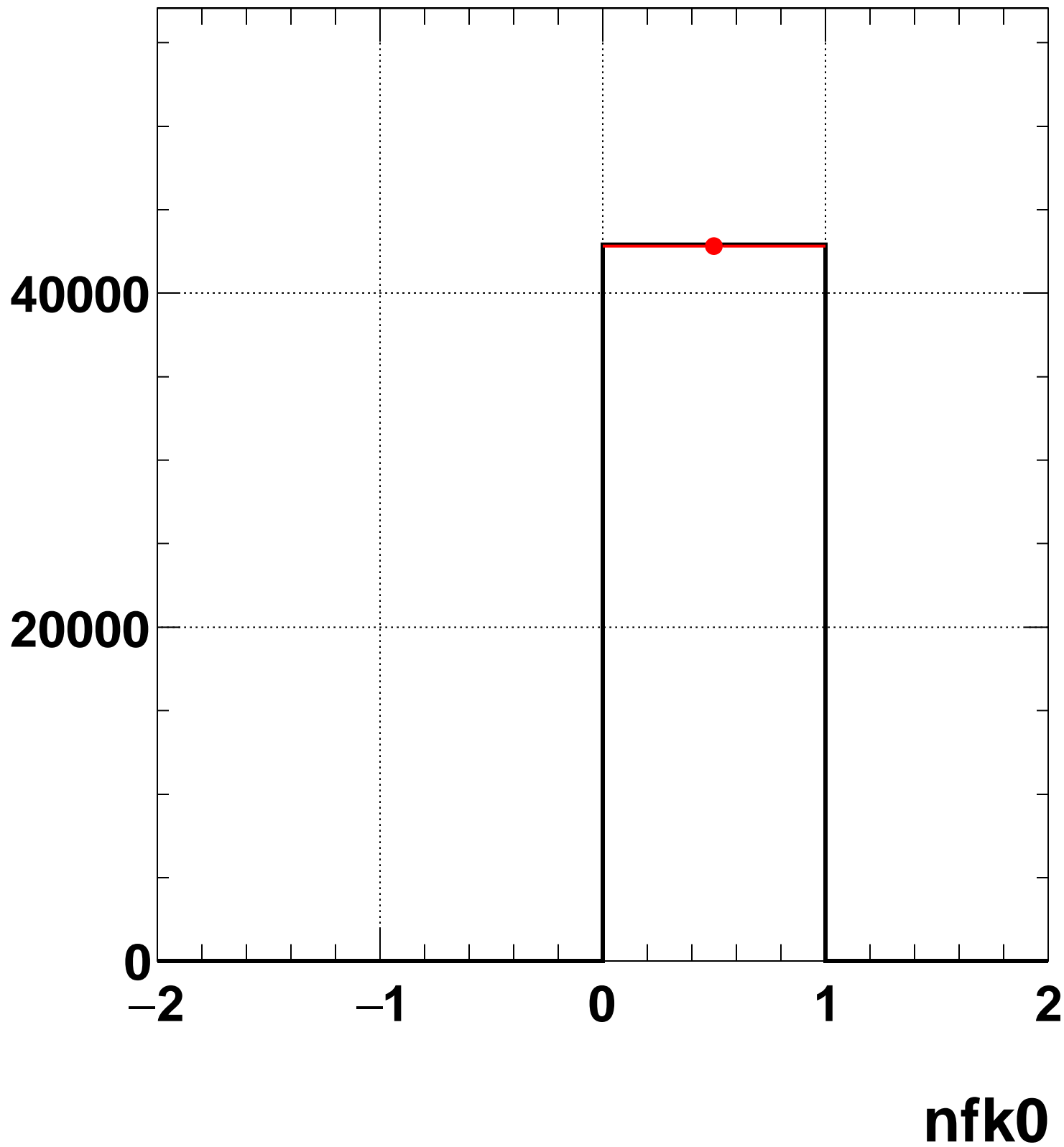
Number of final state K+ / QEL only



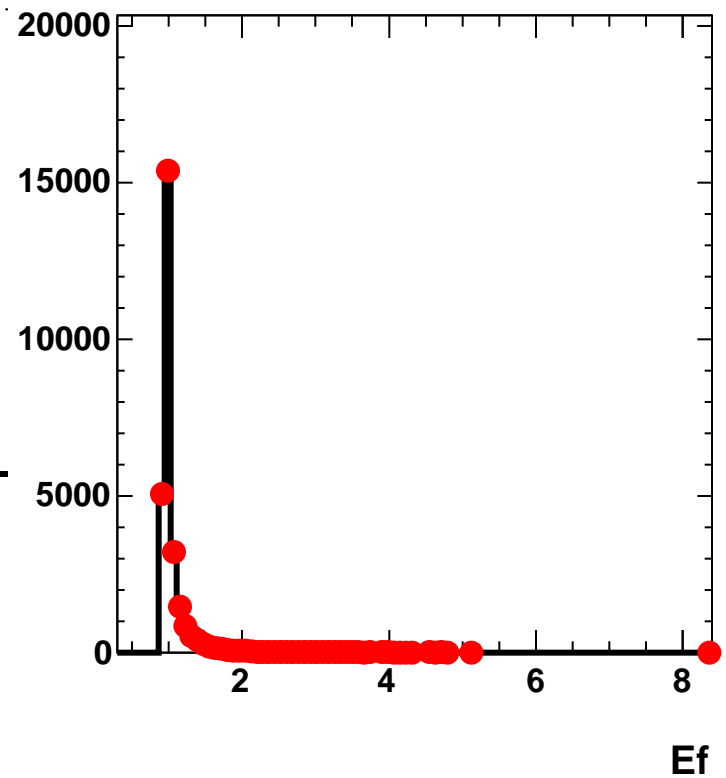
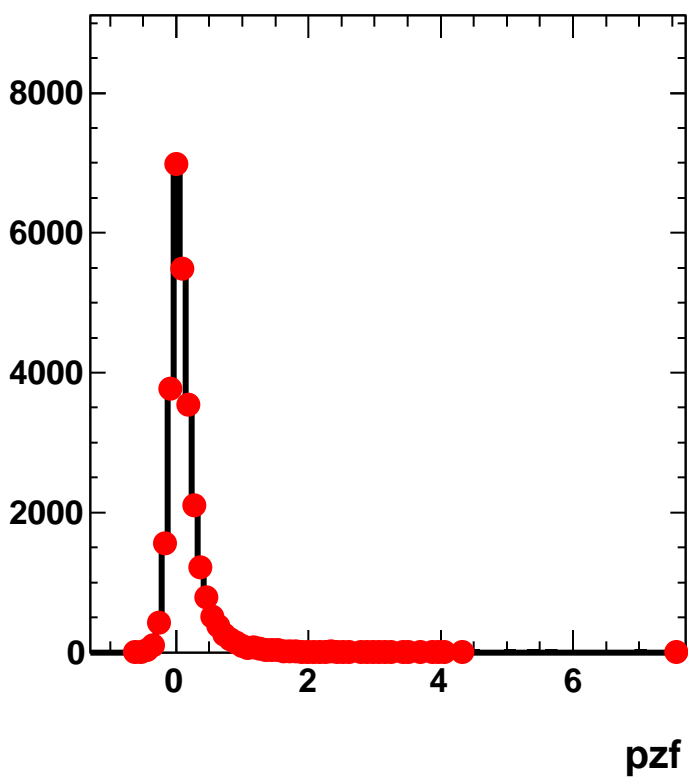
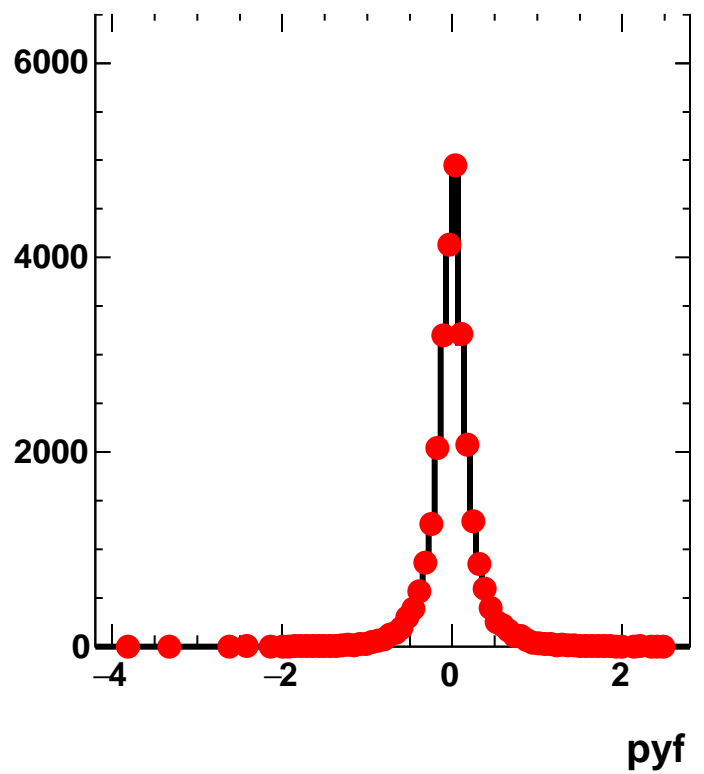
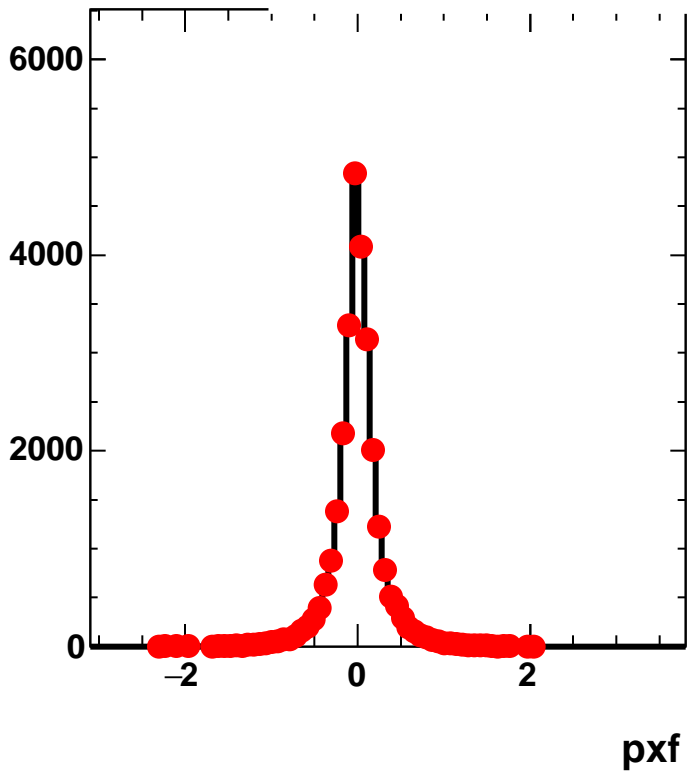
Number of final state K- / QEL only



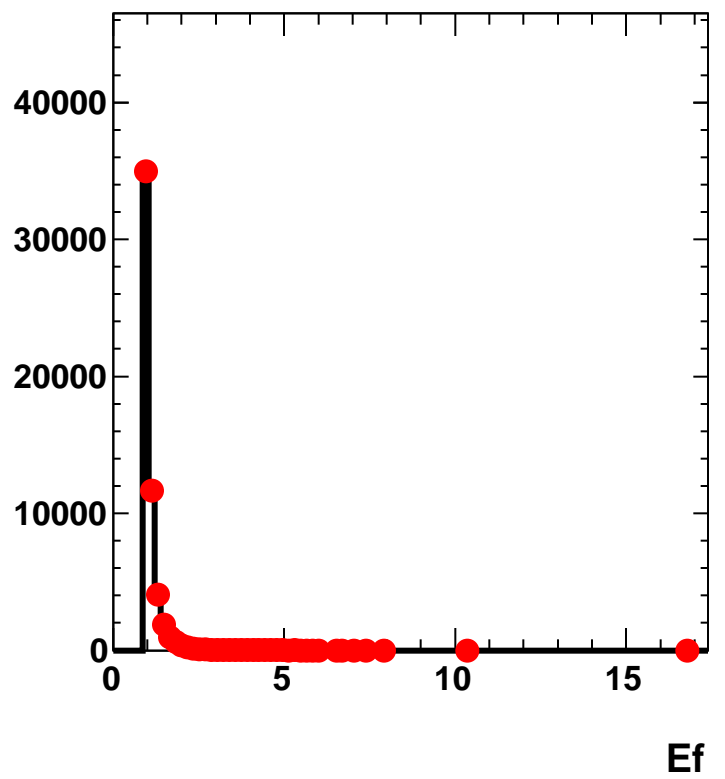
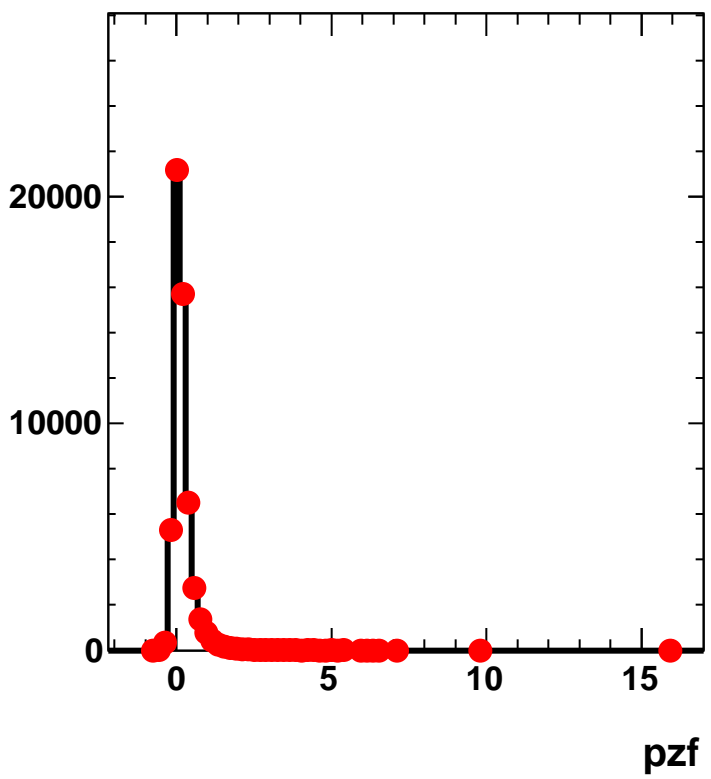
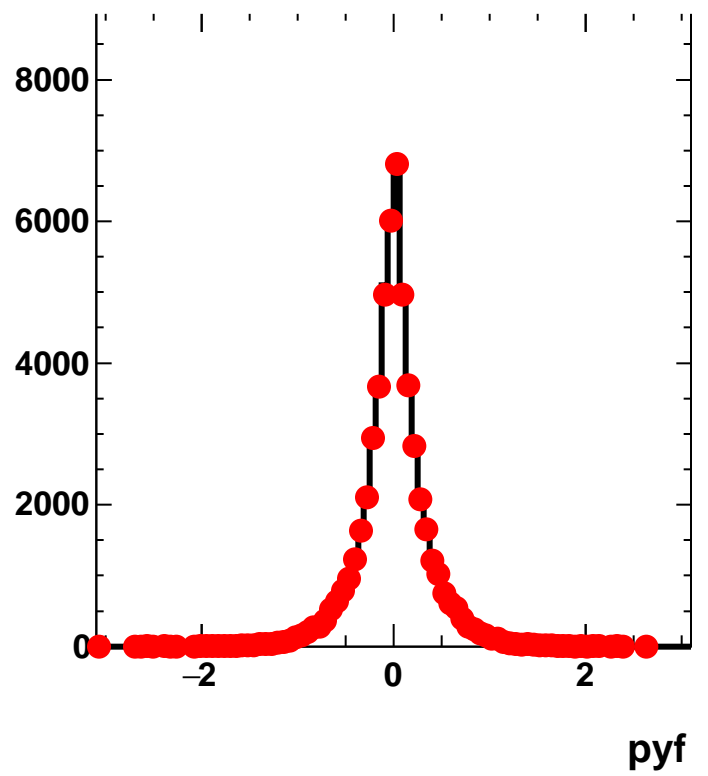
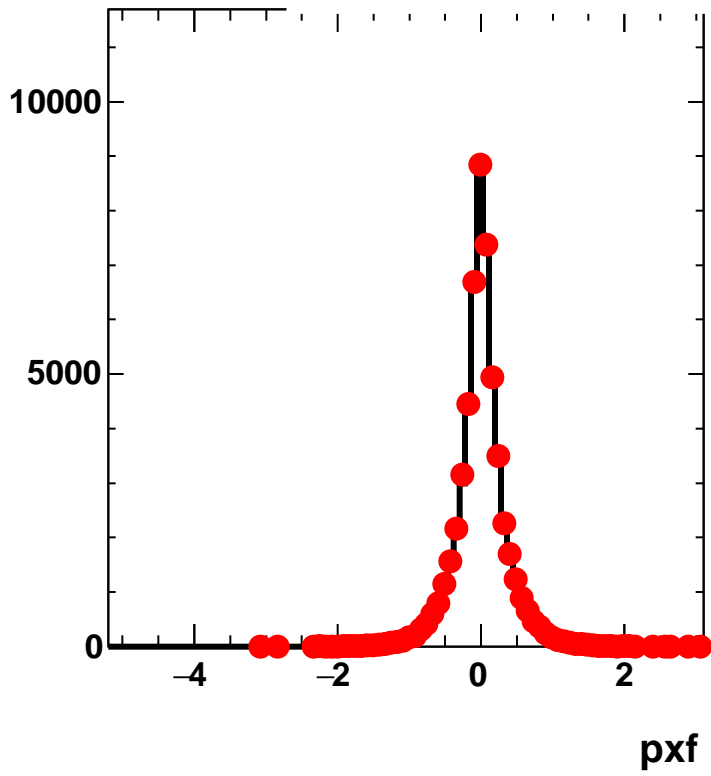
Number of final state K0 / QEL only



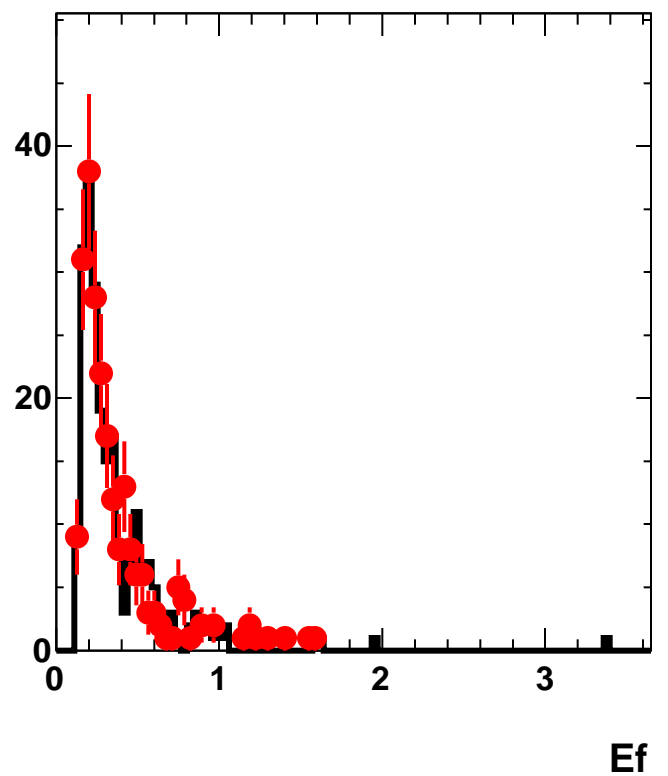
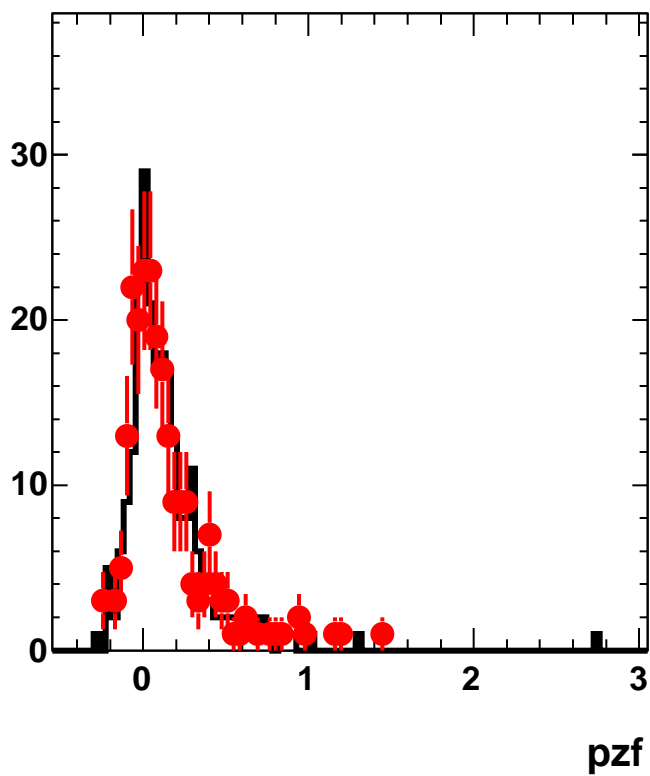
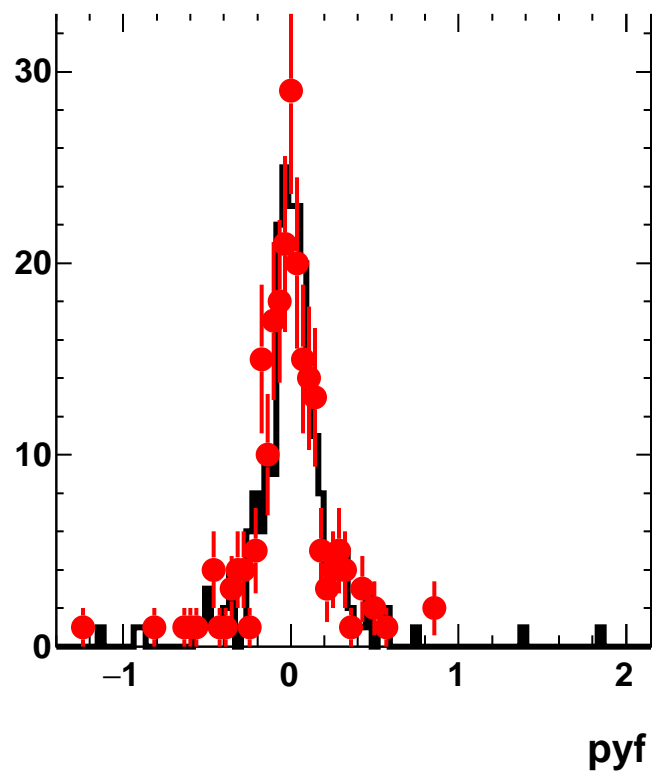
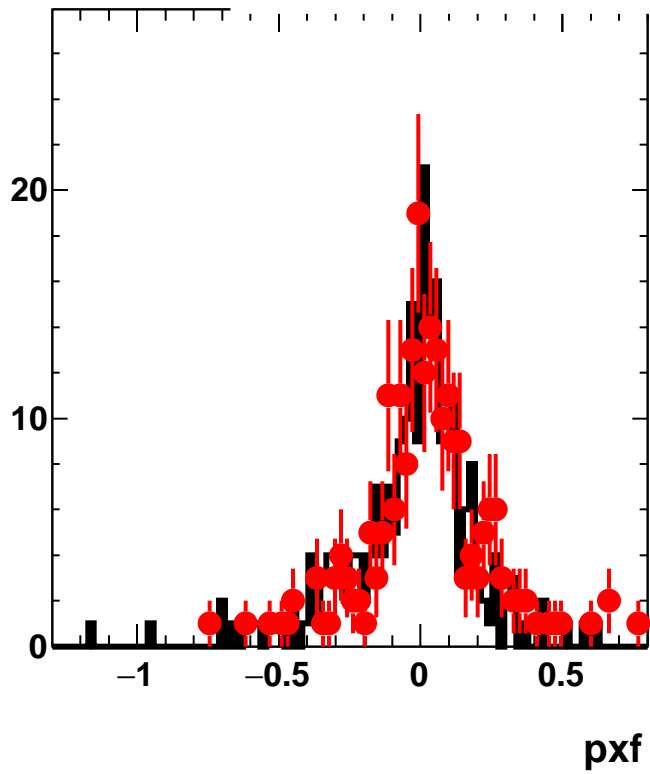
Final state protons 4-momentum / QEL only



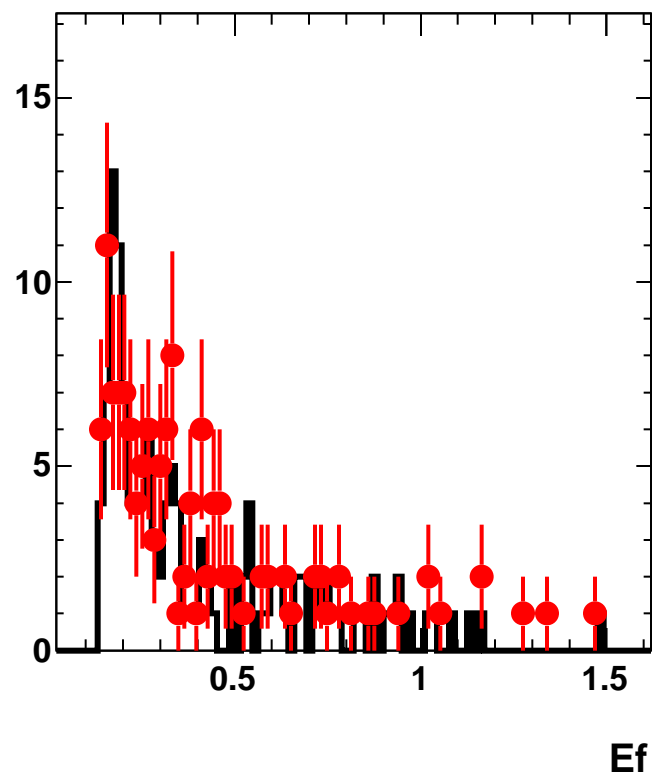
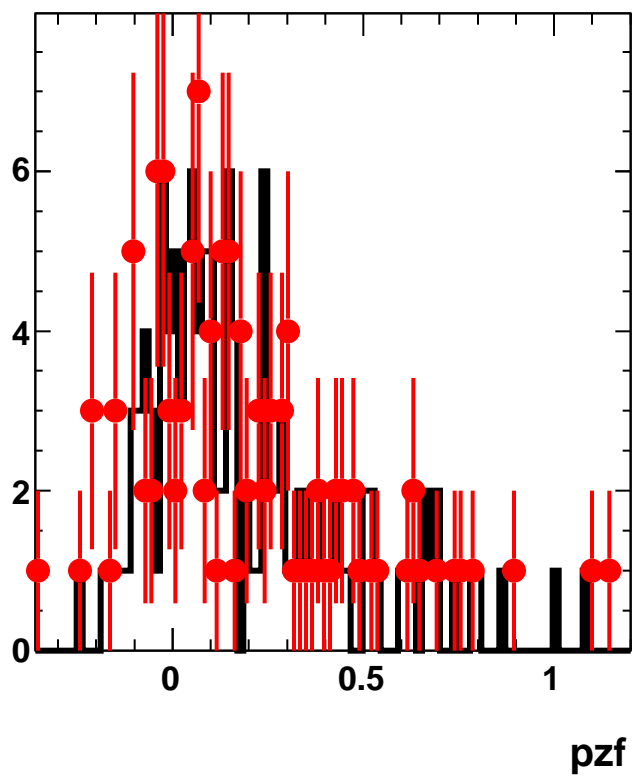
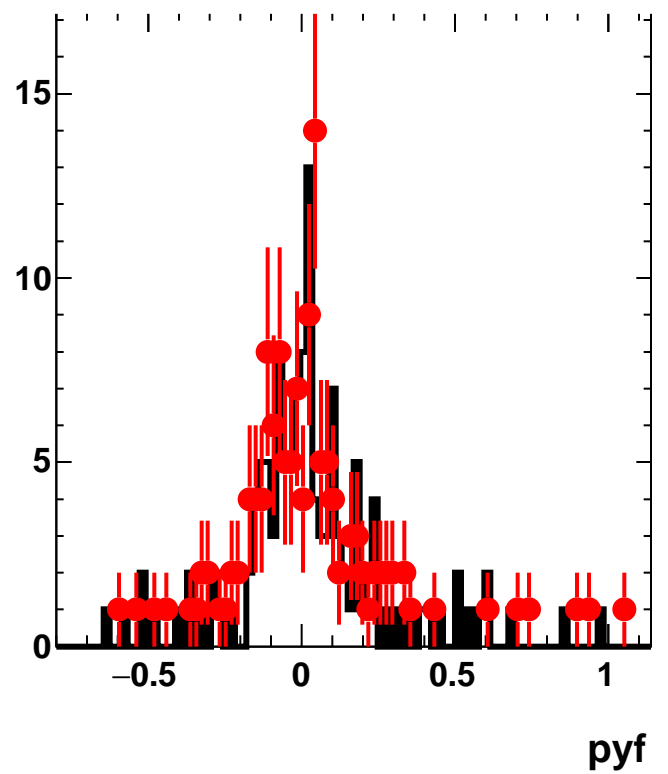
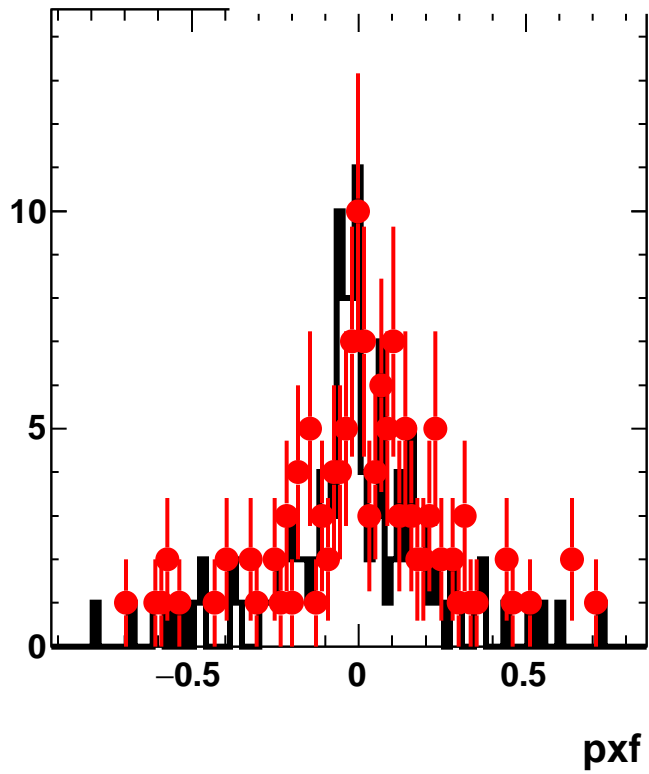
Final state neutrons 4-momentum / QEL only



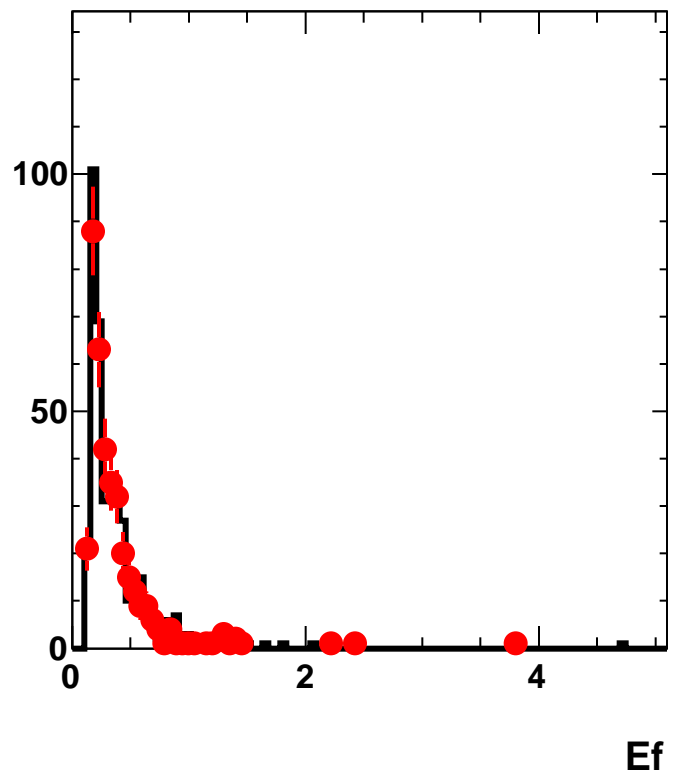
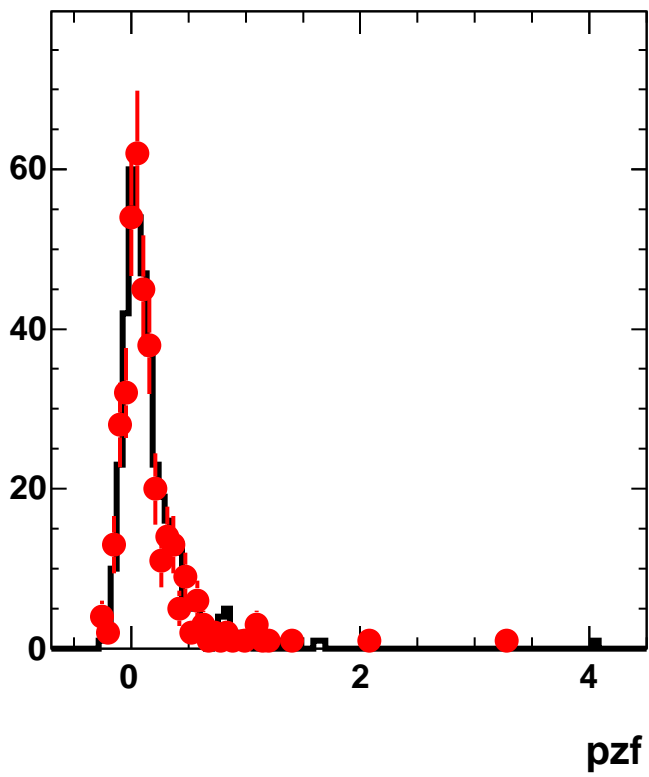
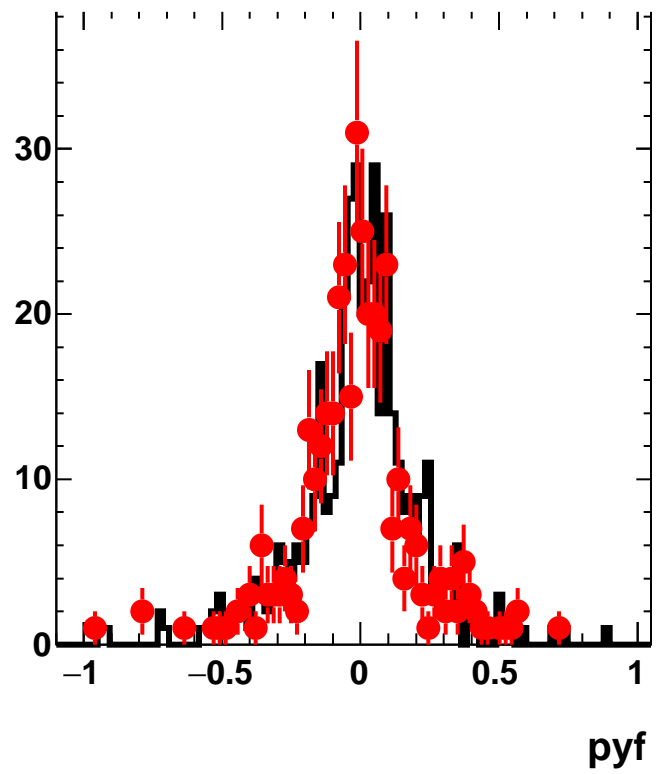
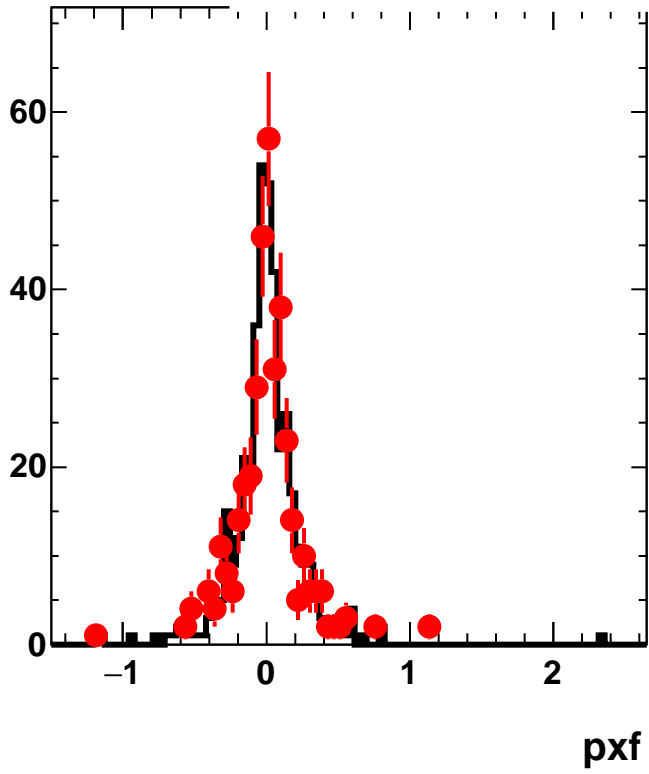
Final state pi0's 4-momentum / QEL only



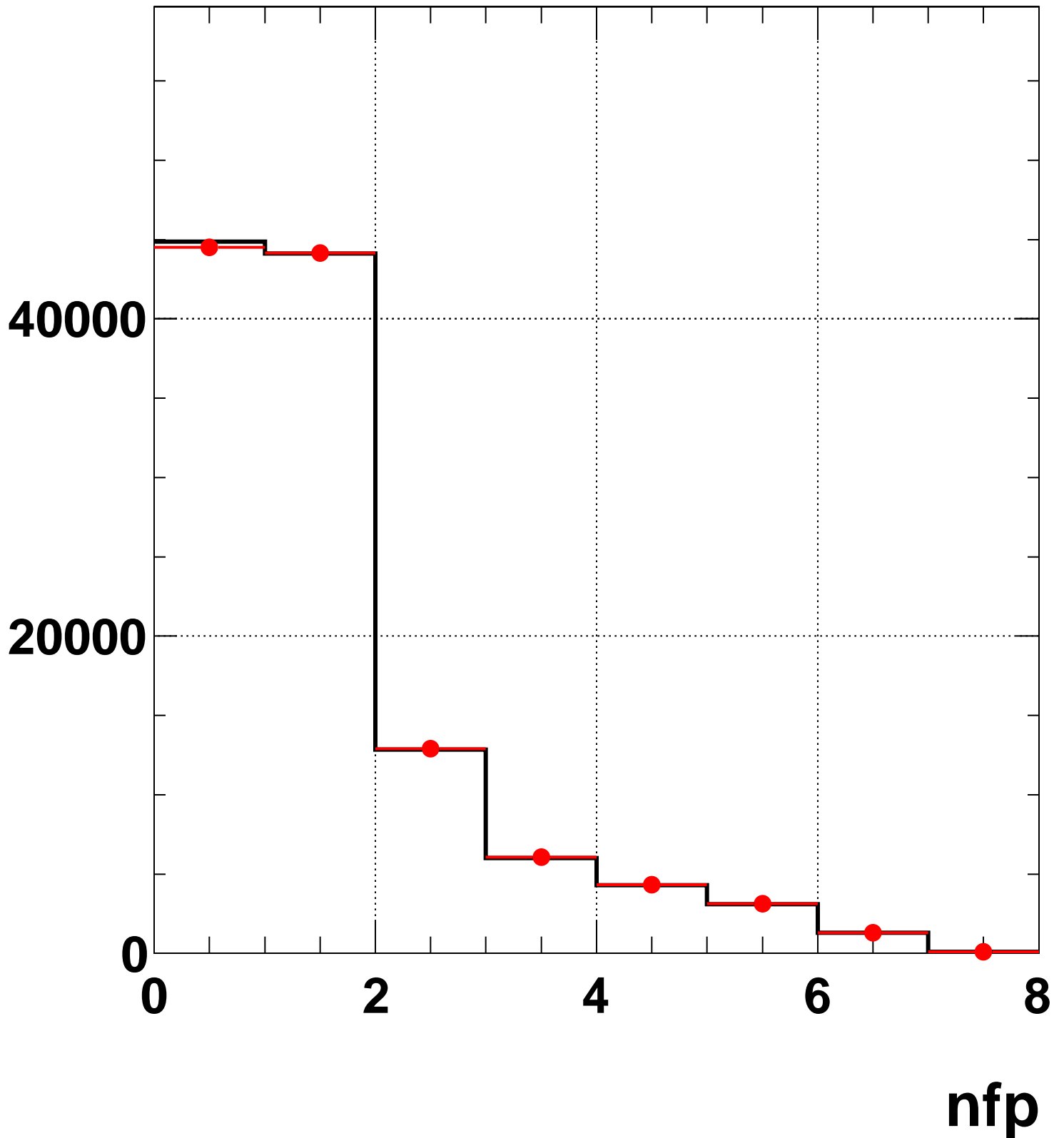
Final state pi+'s 4-momentum / QEL only



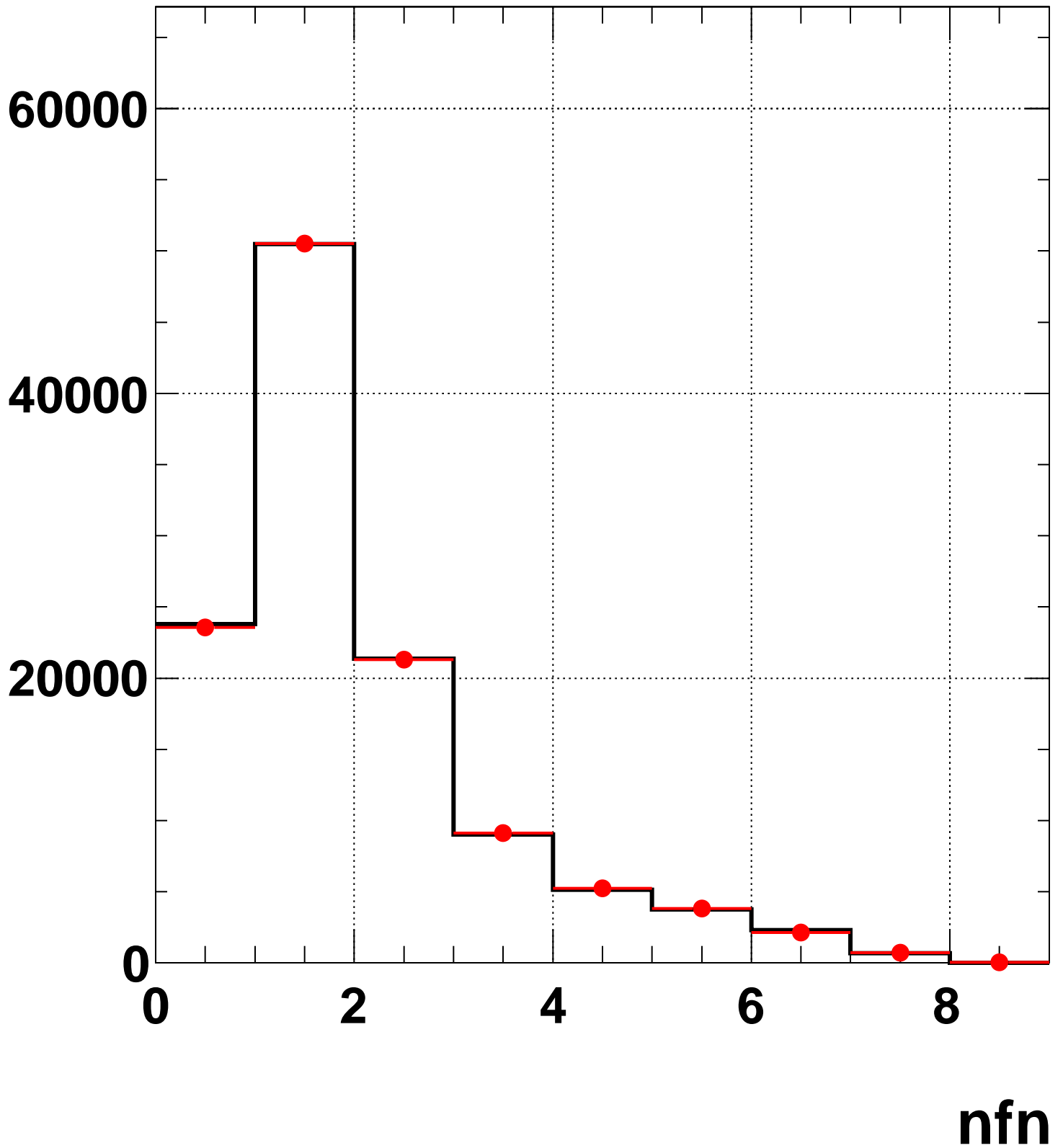
Final state pi-'s 4-momentum/ QEL only



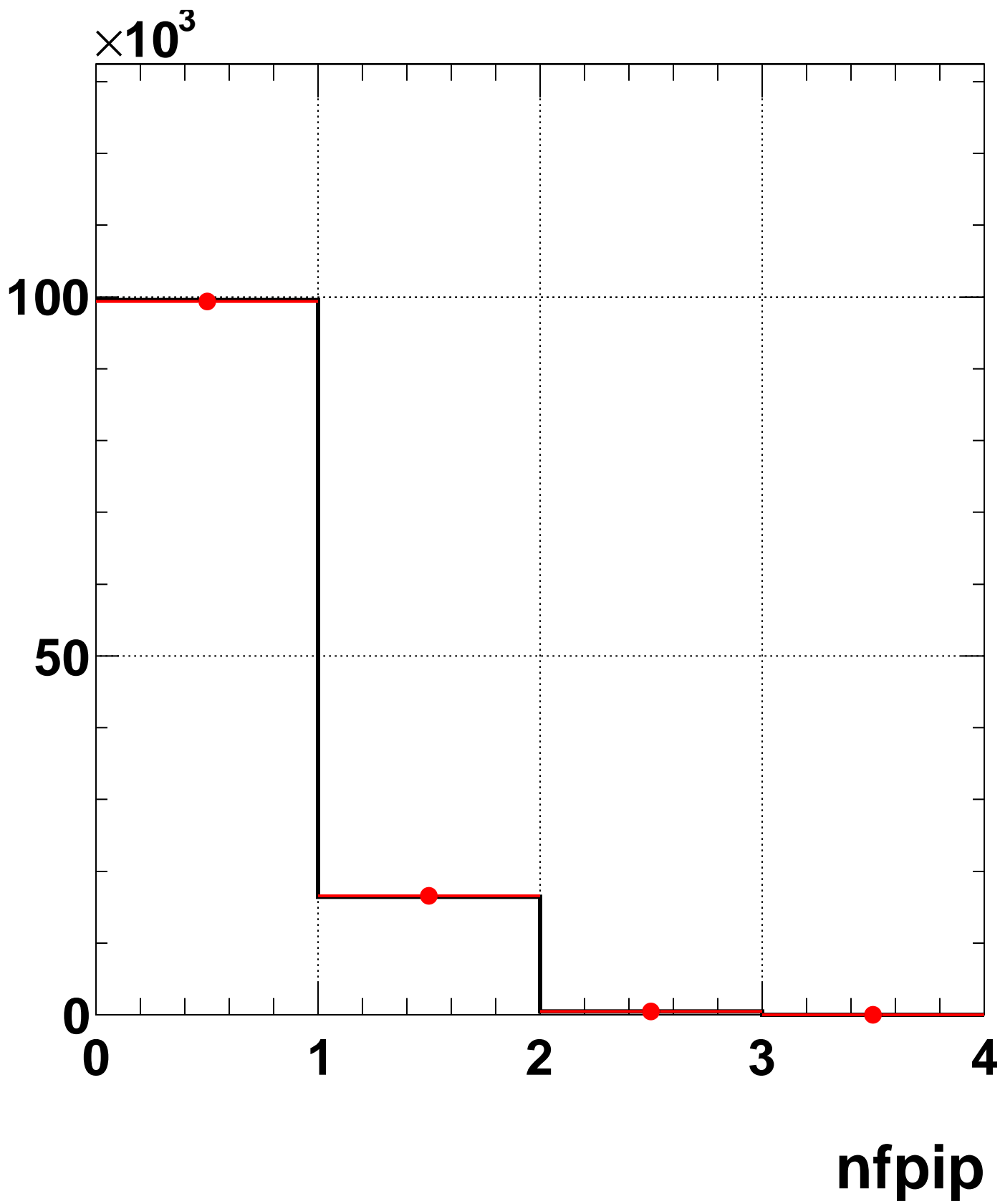
Number of final state protons / RES only



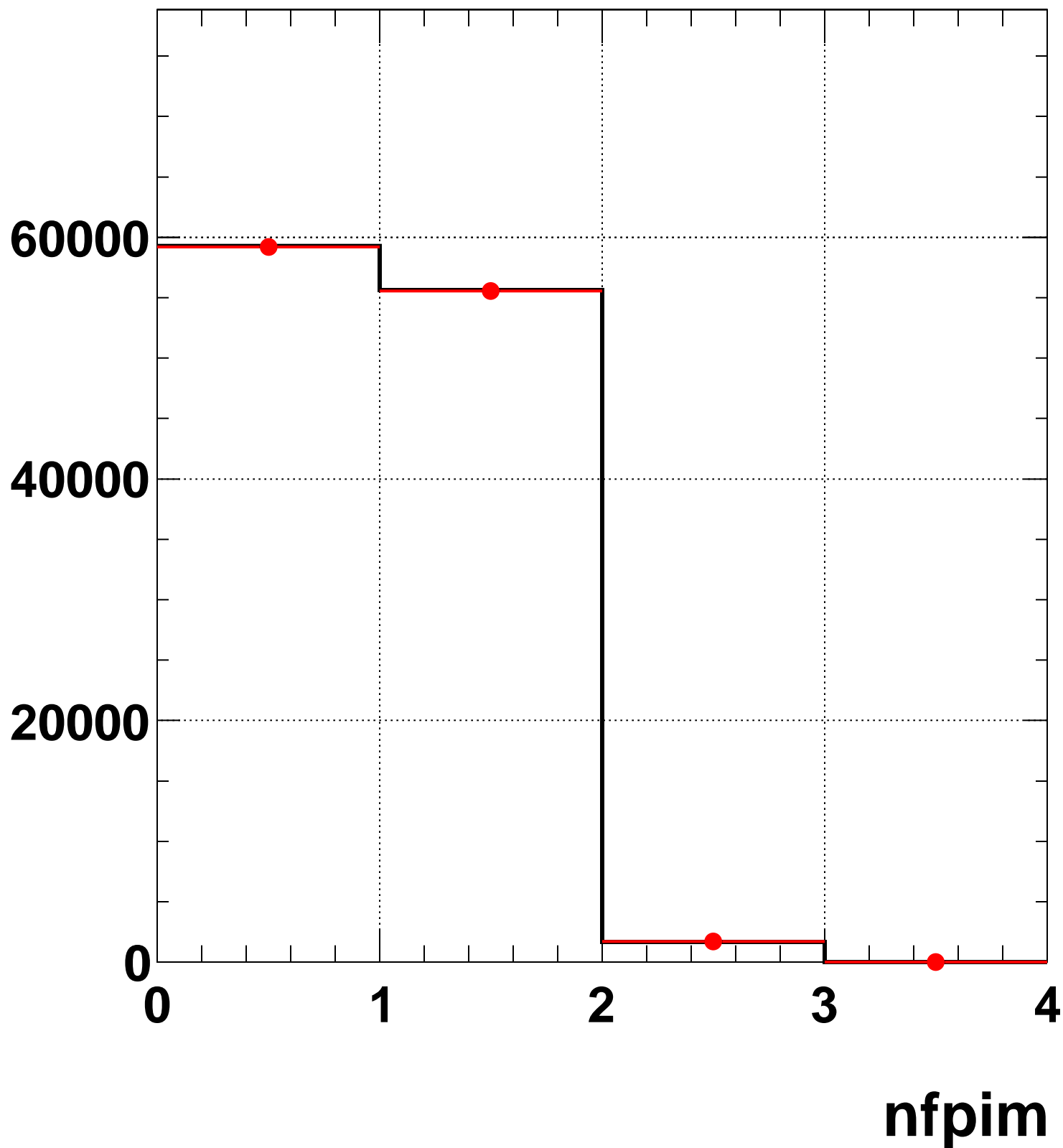
Number of final state neutrons / RES only



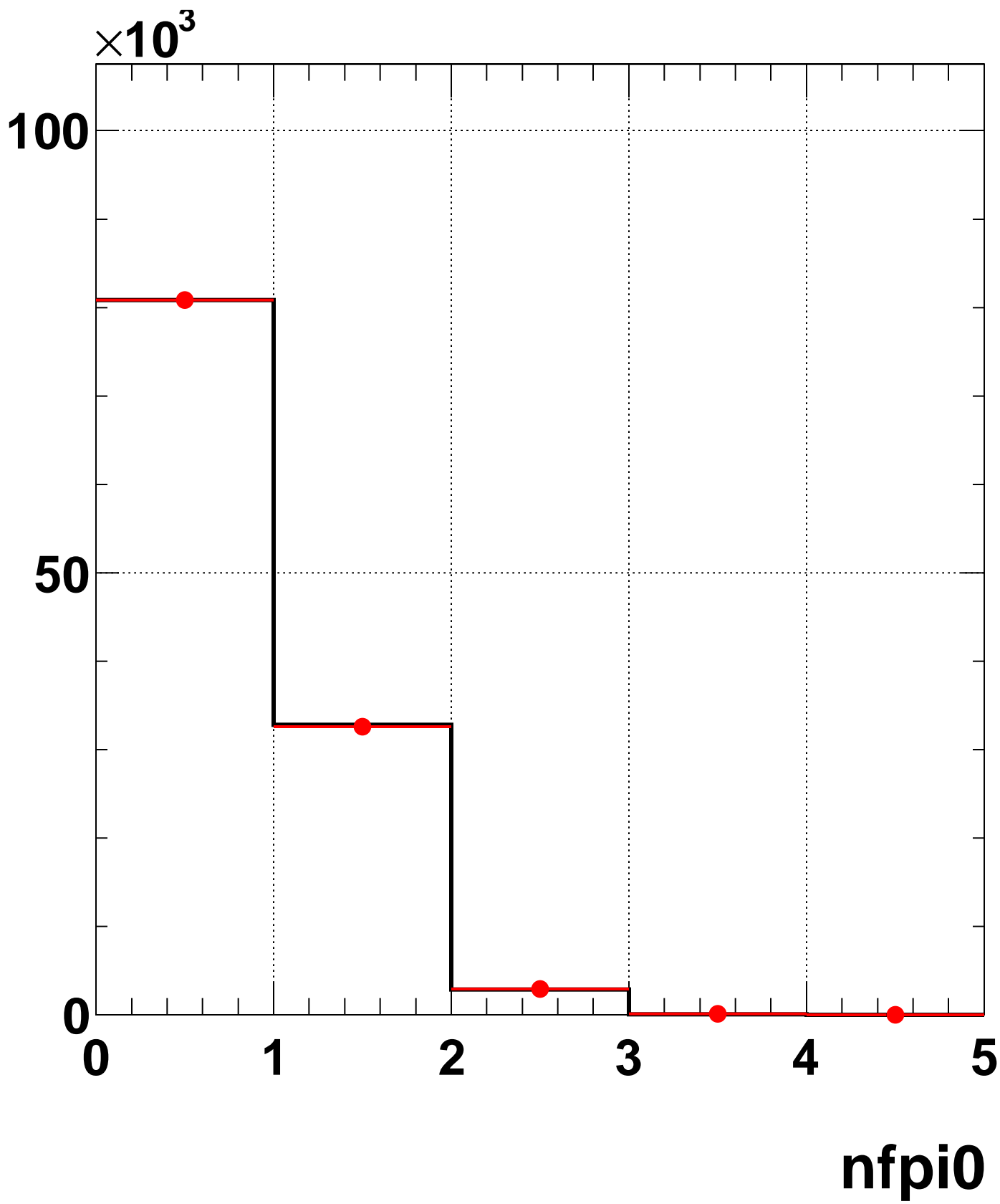
Number of final state pi+ / RES only



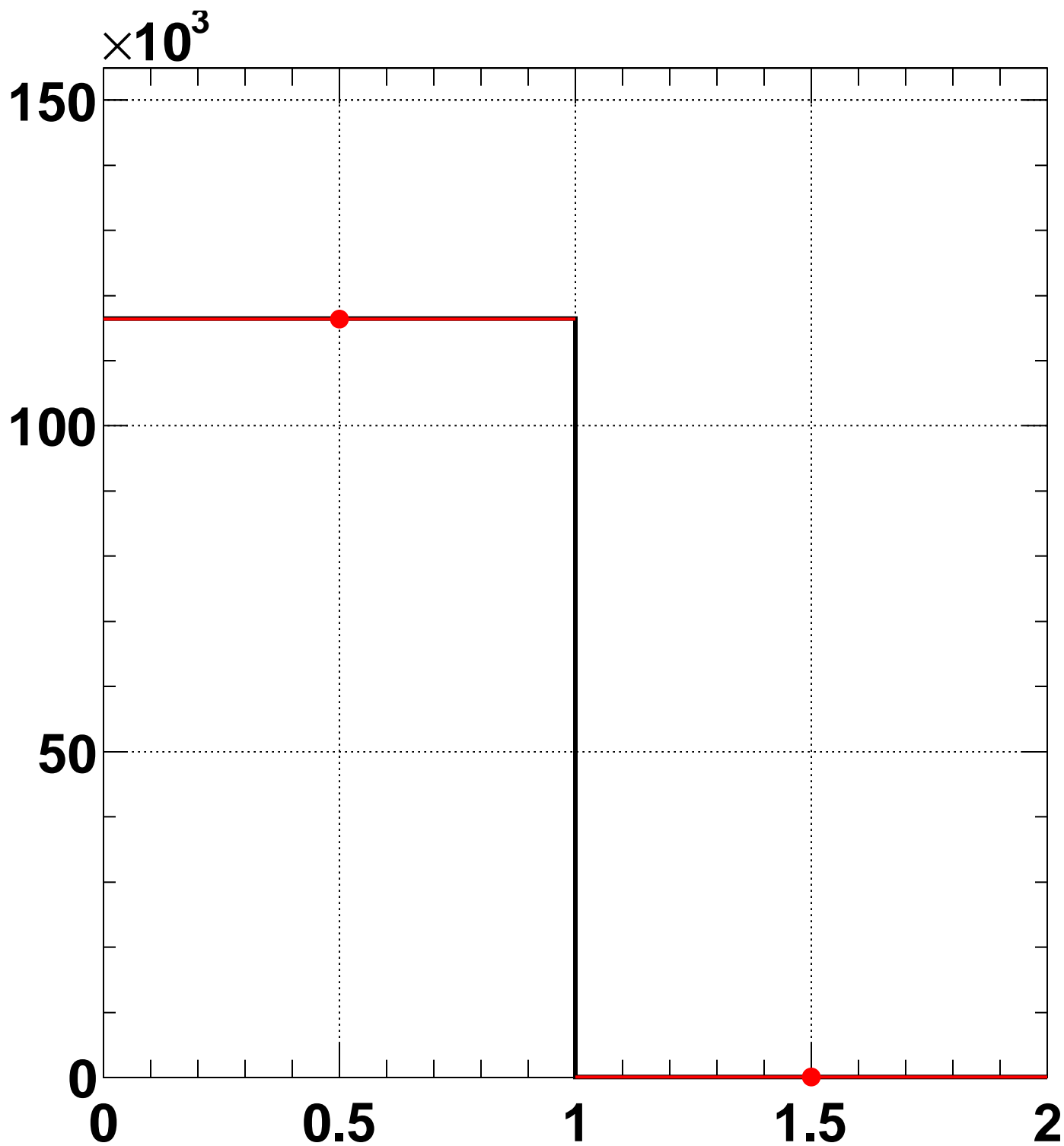
Number of final state pi- / RES only



Number of final state pi0 / RES only

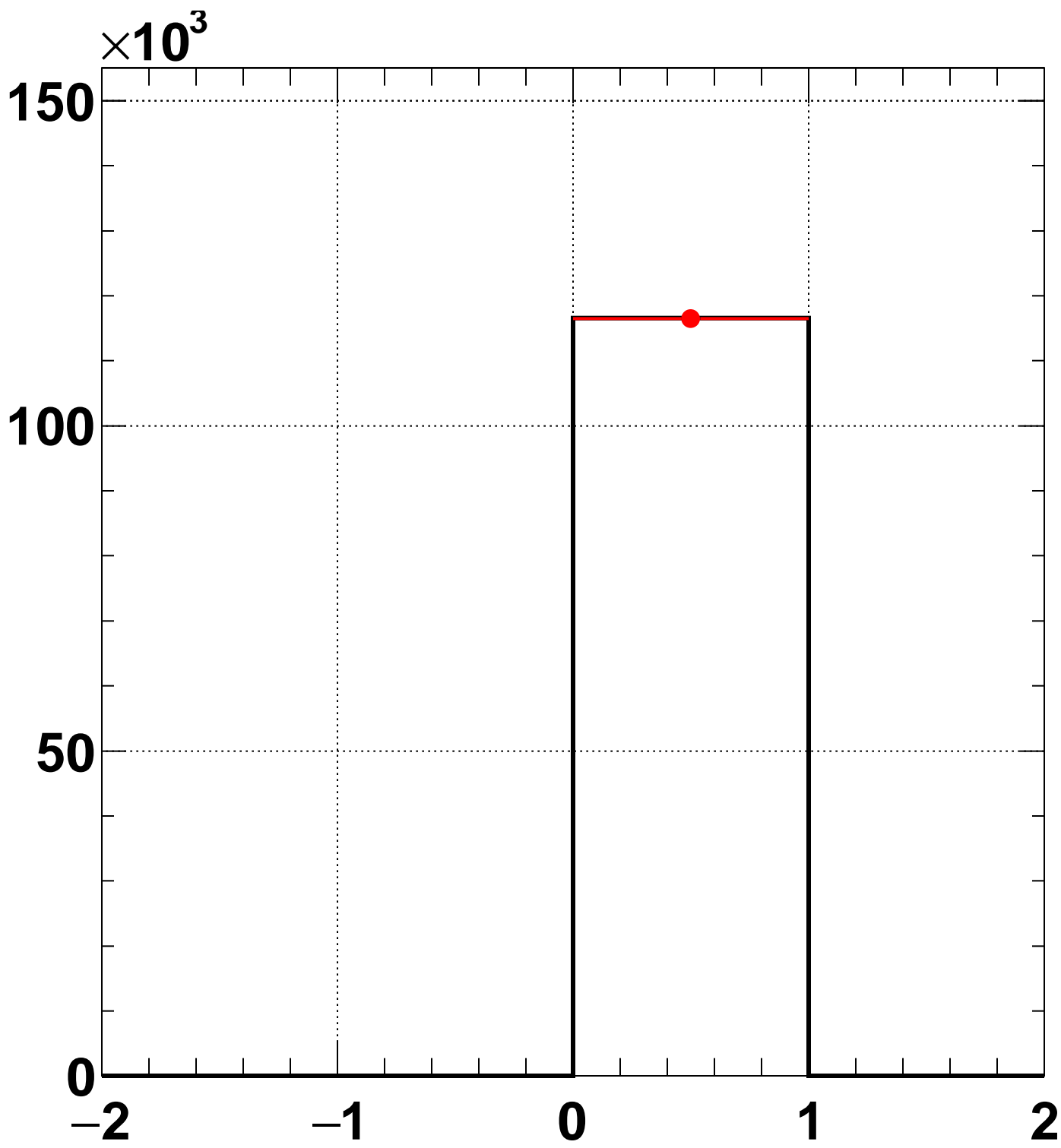


Number of final state K+ / RES only



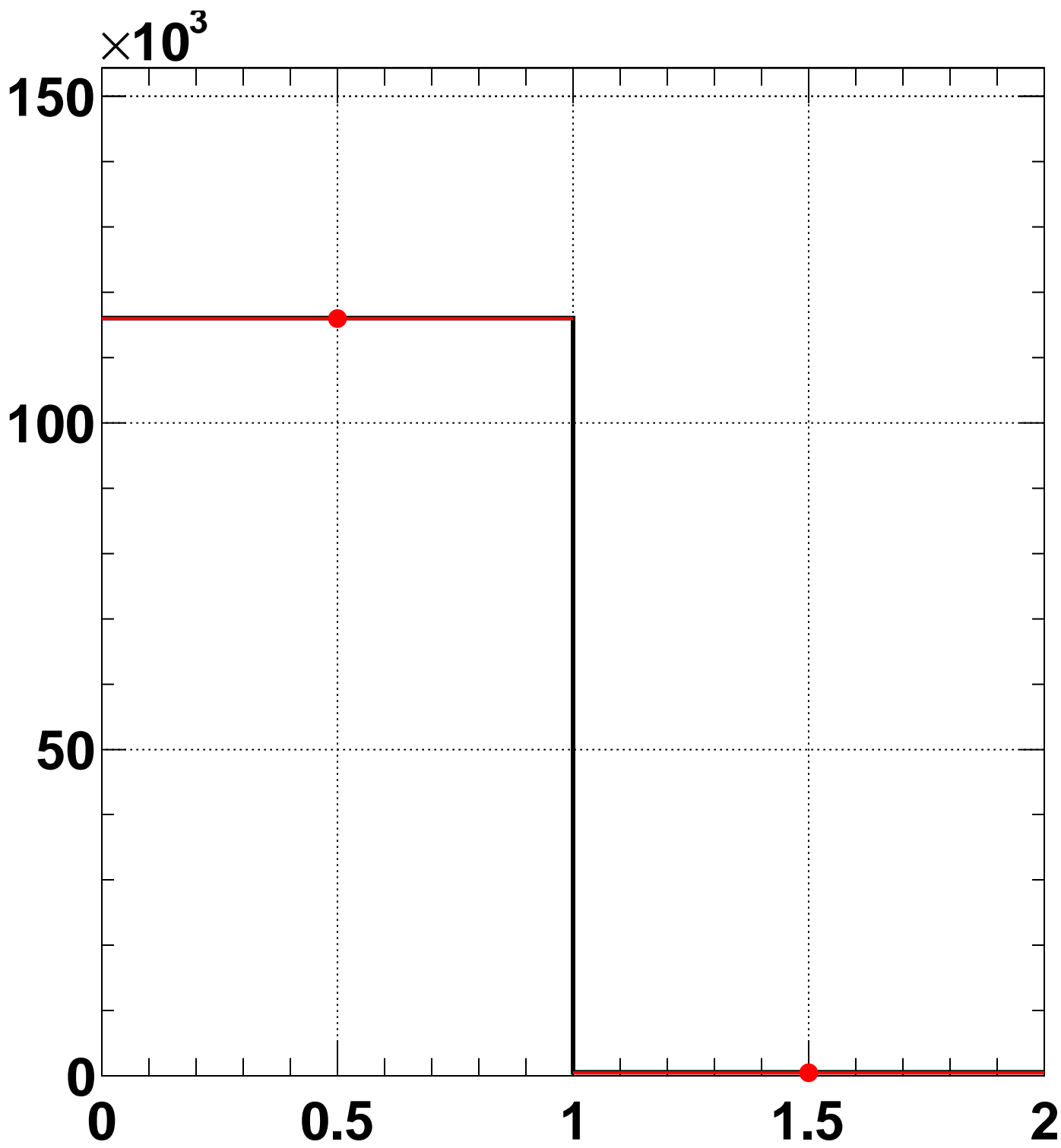
nfkp

Number of final state K- / RES only



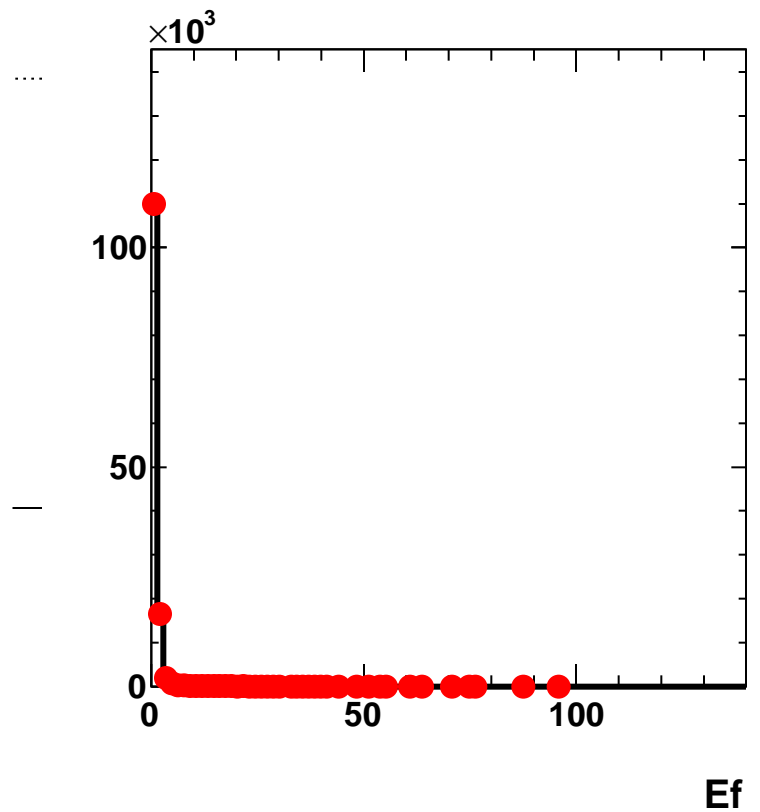
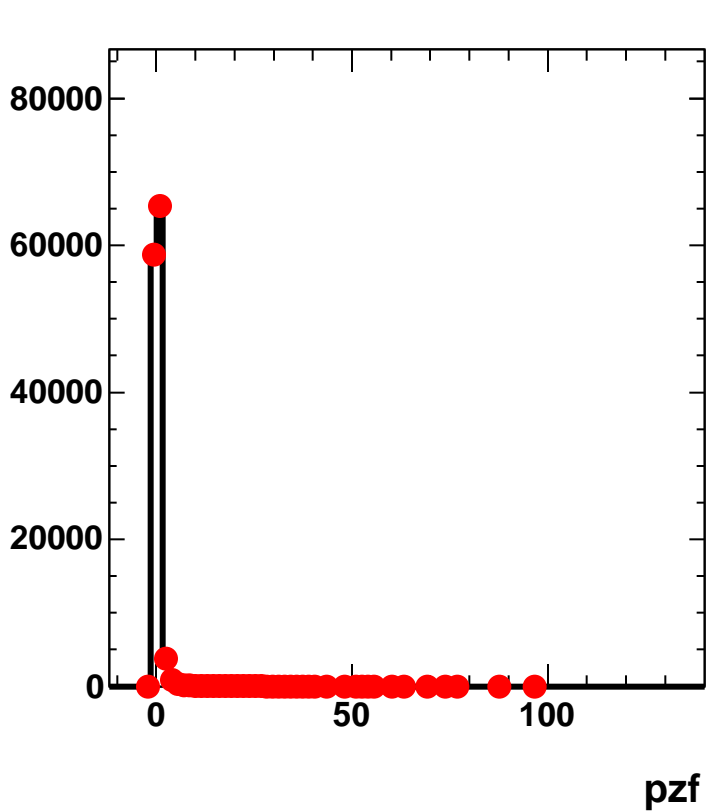
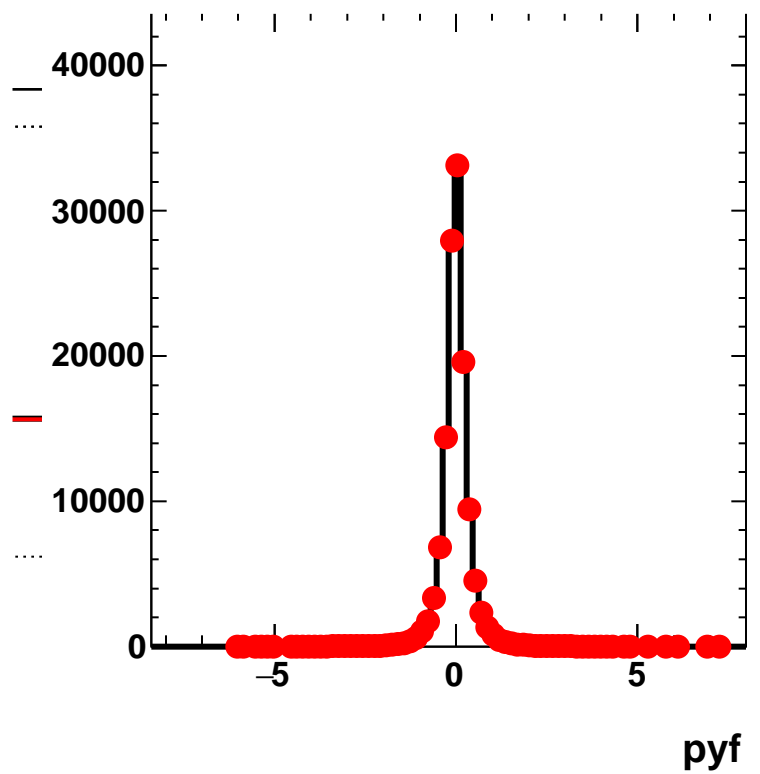
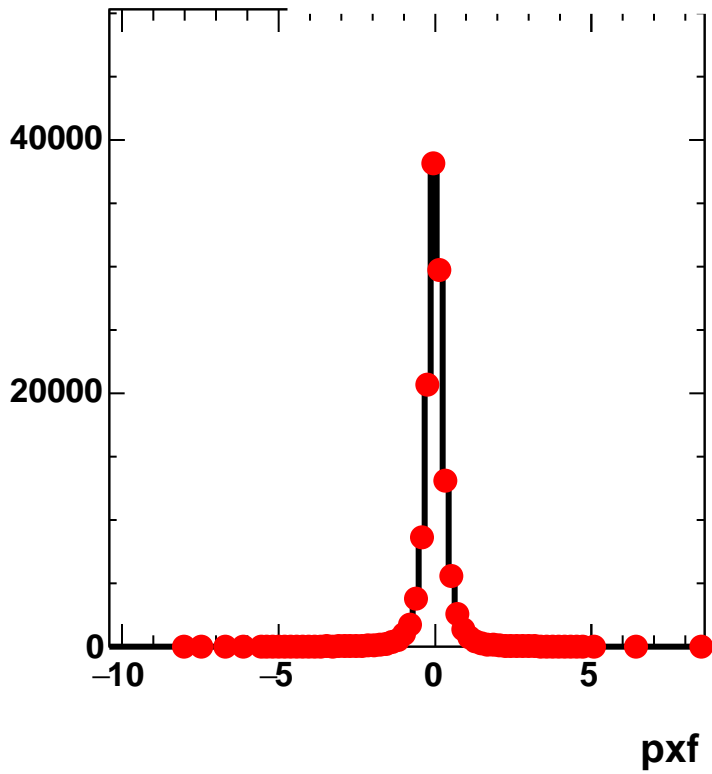
nfkm

Number of final state K0 / RES only

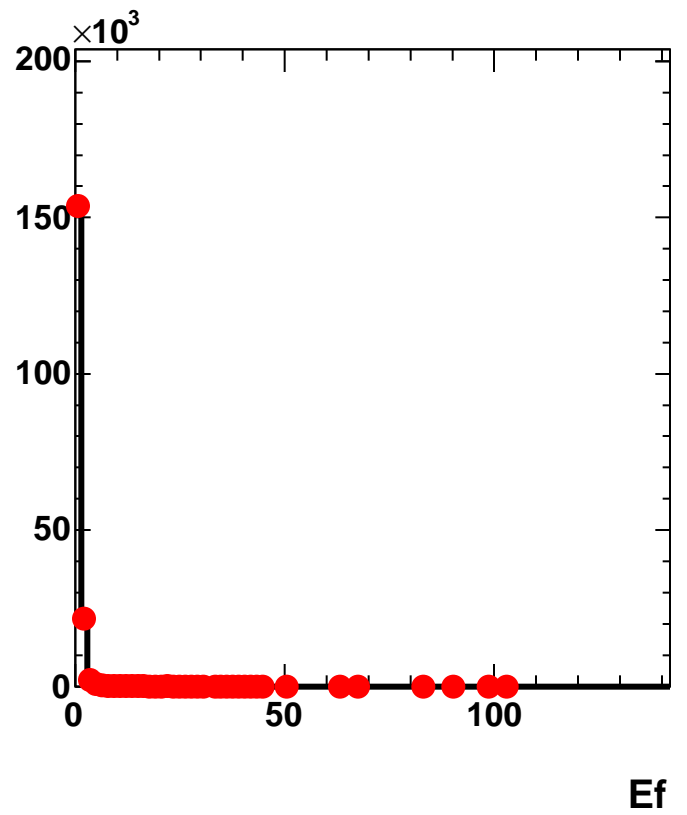
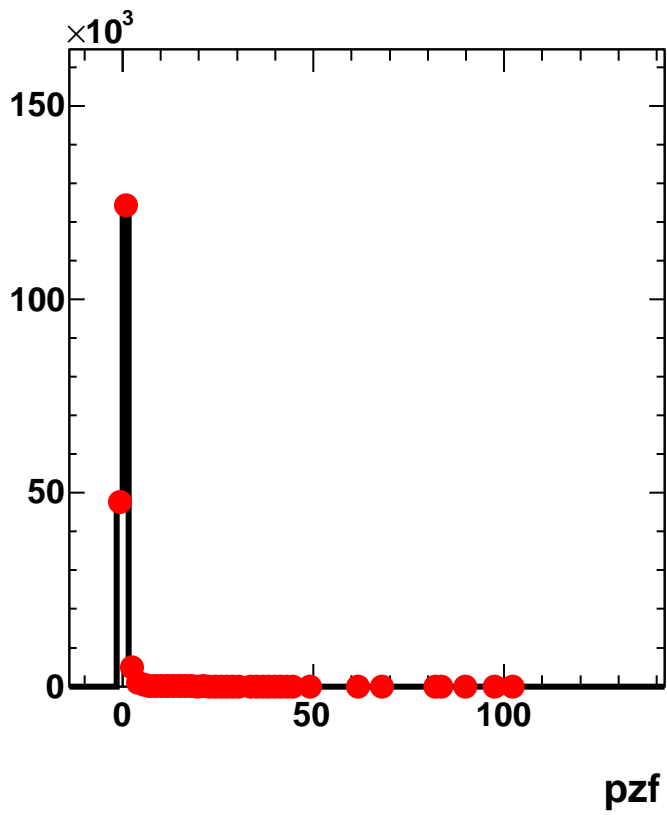
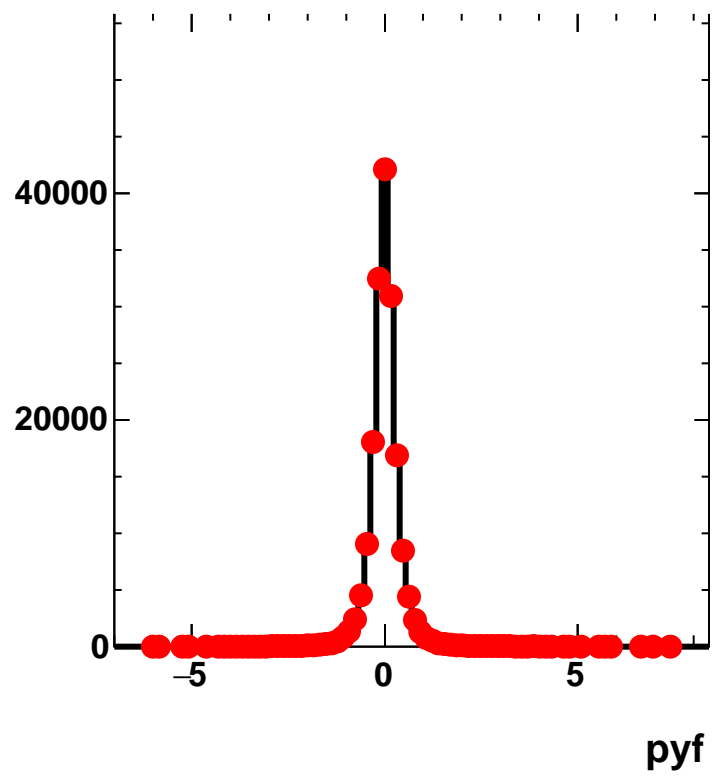
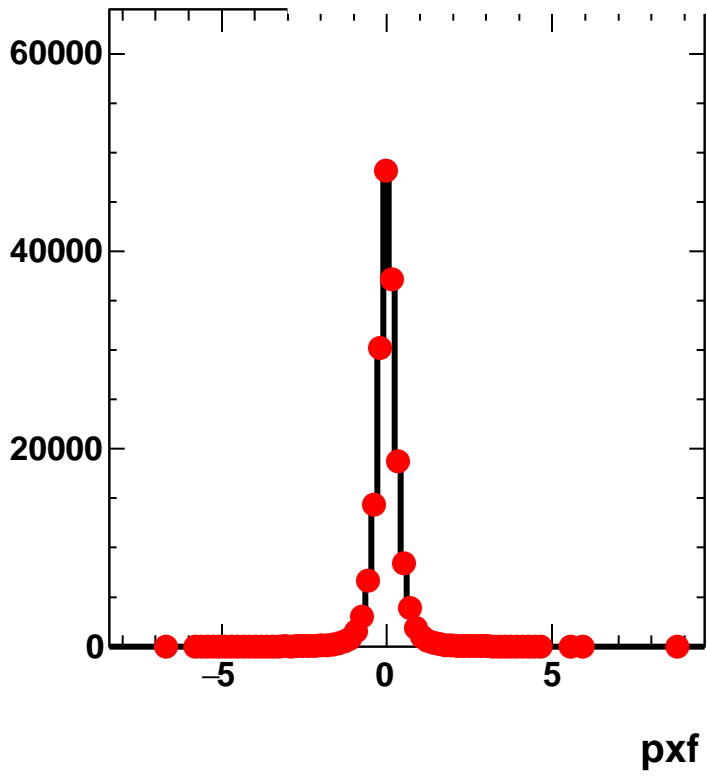


nfk0

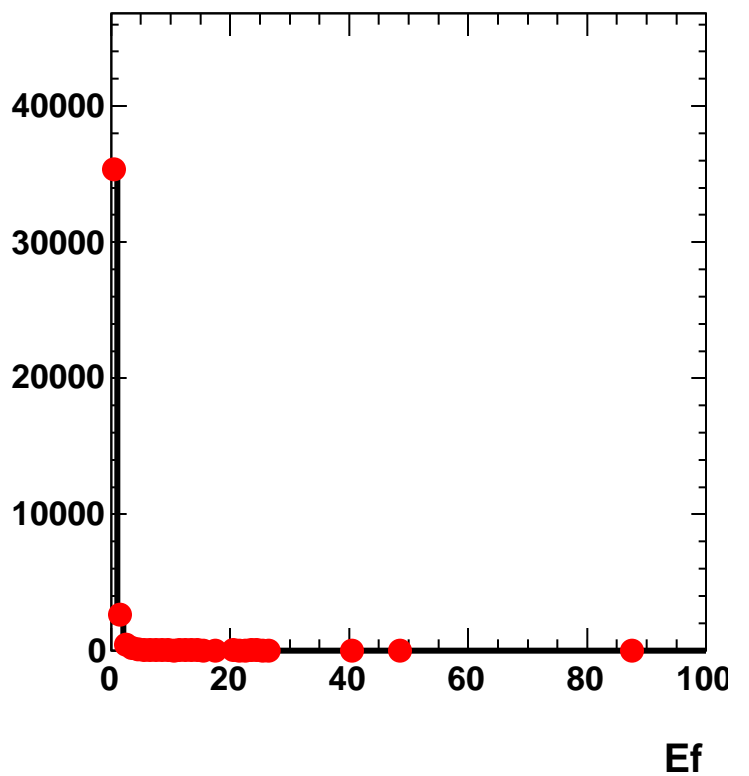
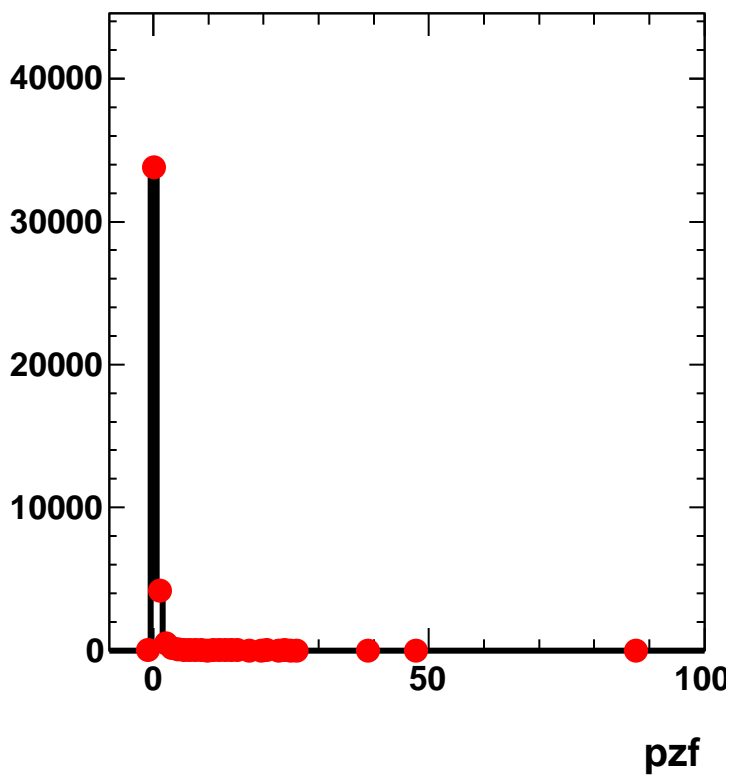
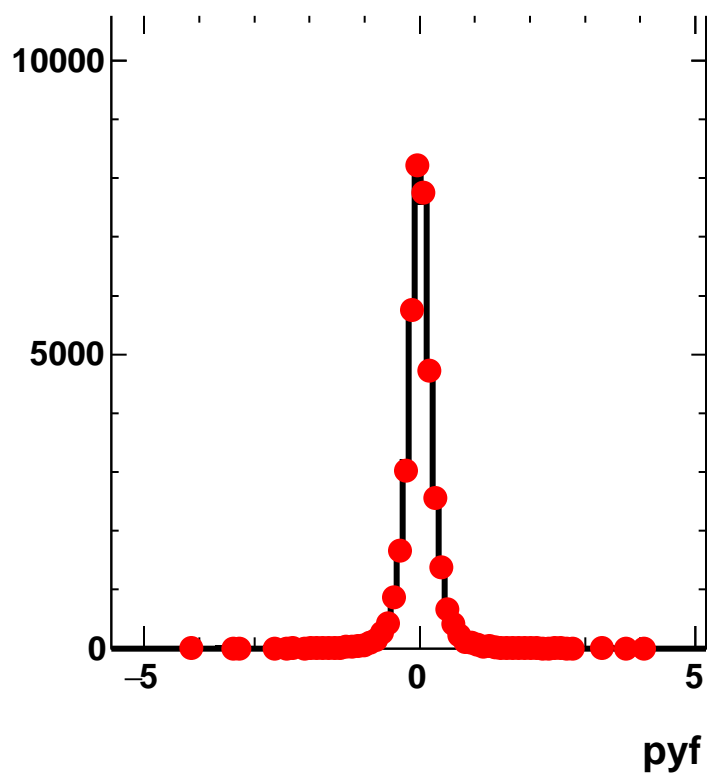
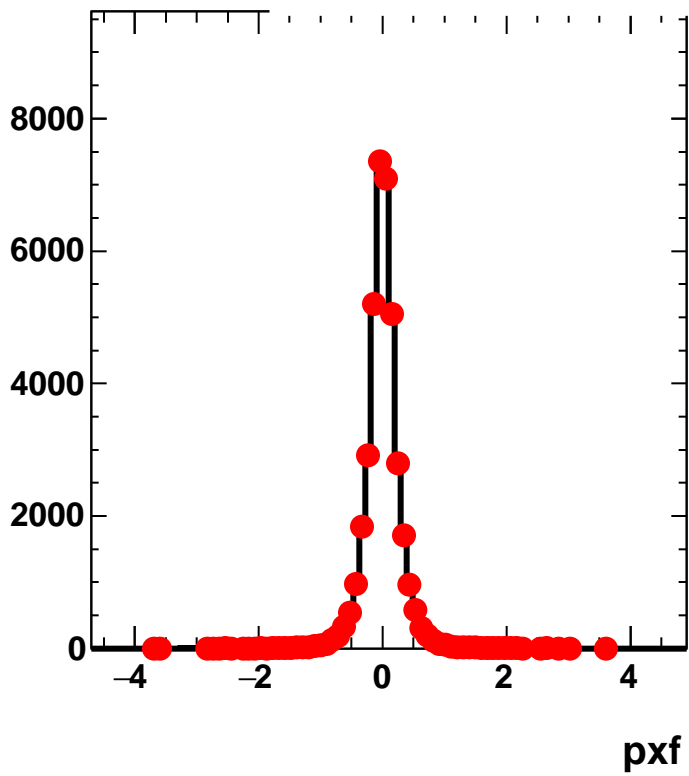
Final state protons 4-momentum / RES only



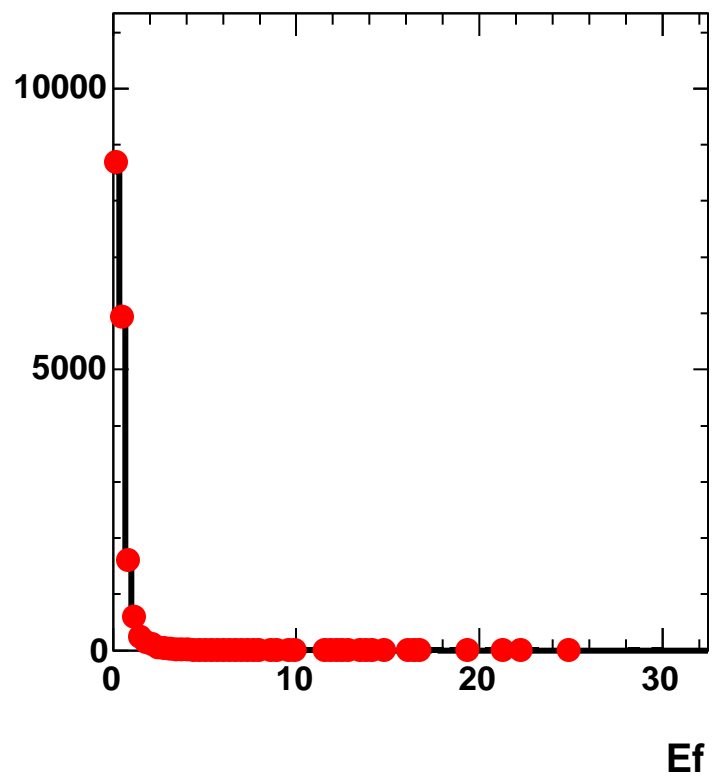
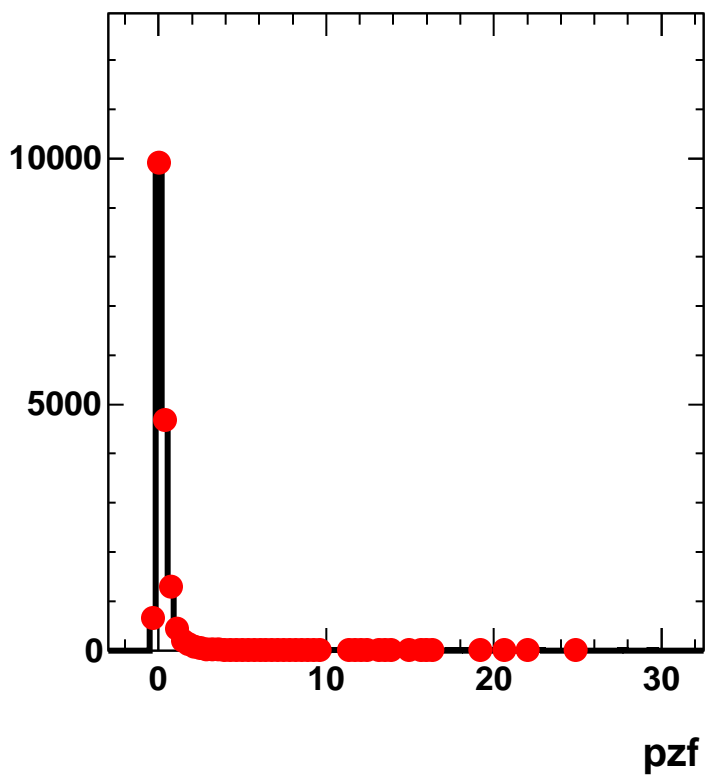
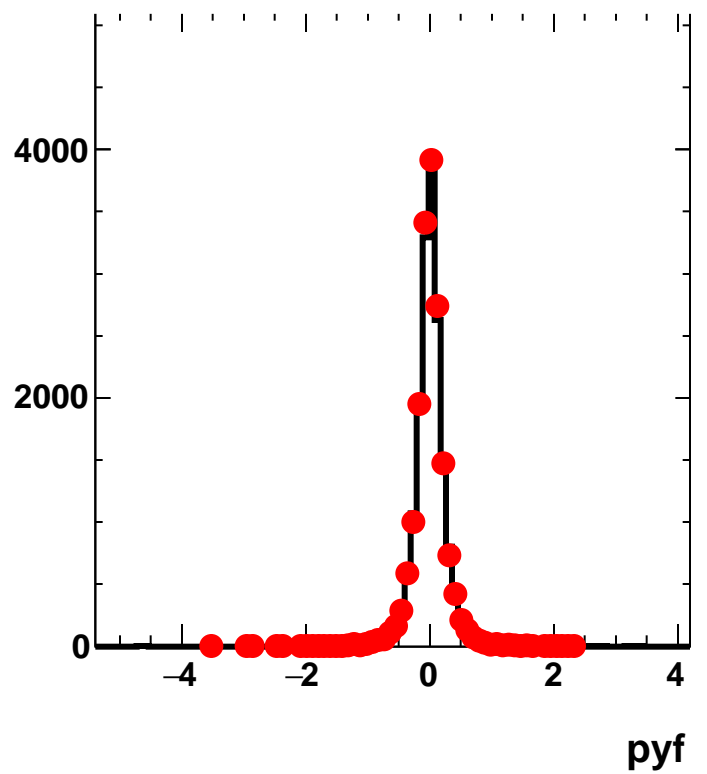
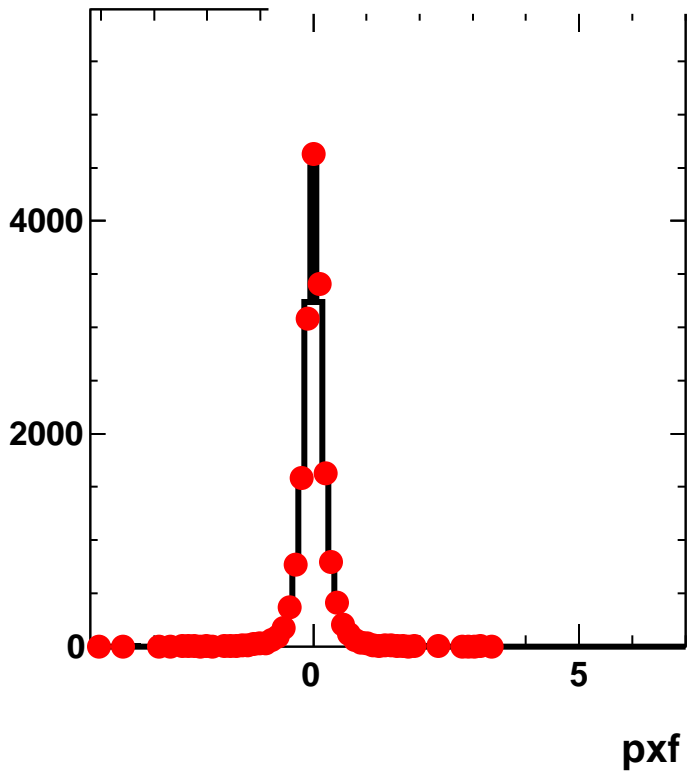
Final state neutrons 4-momentum / RES only



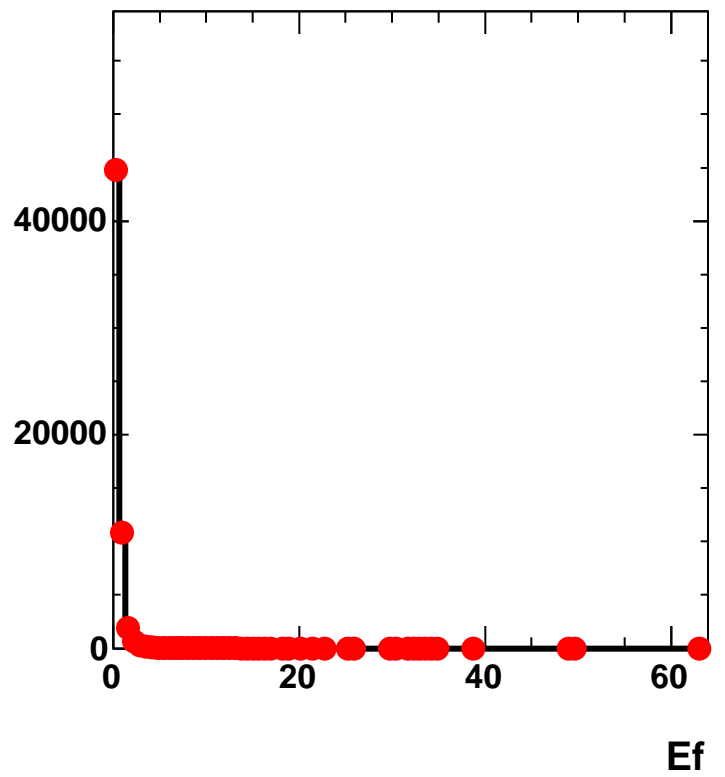
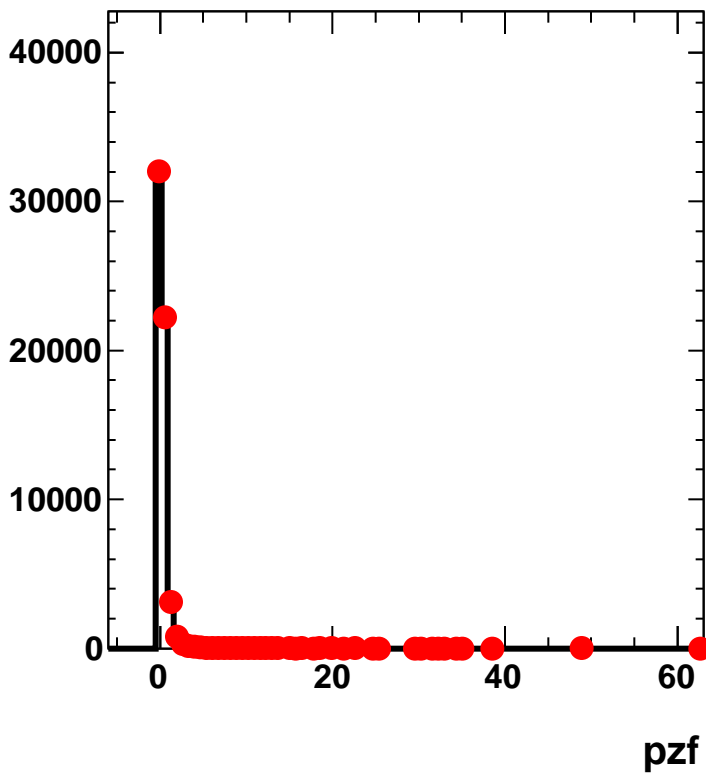
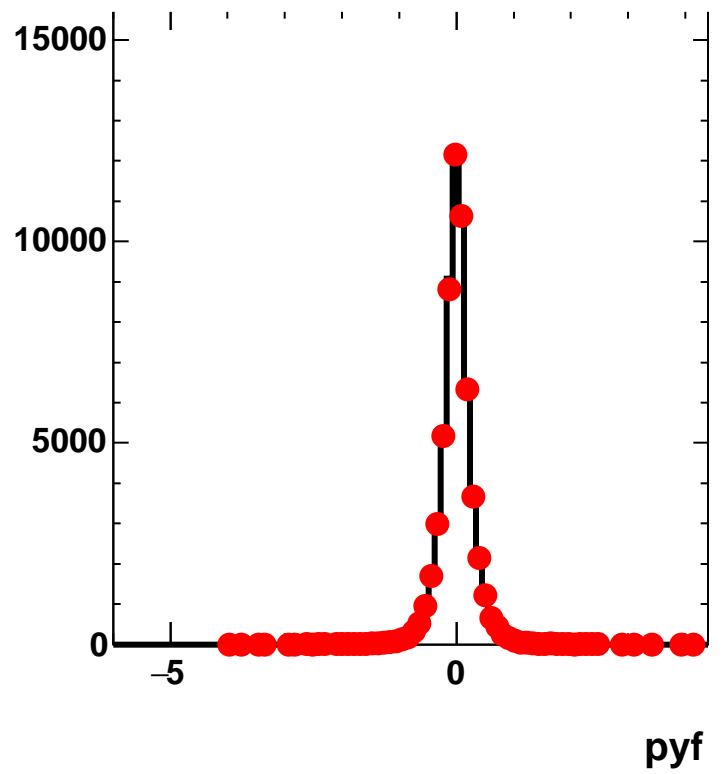
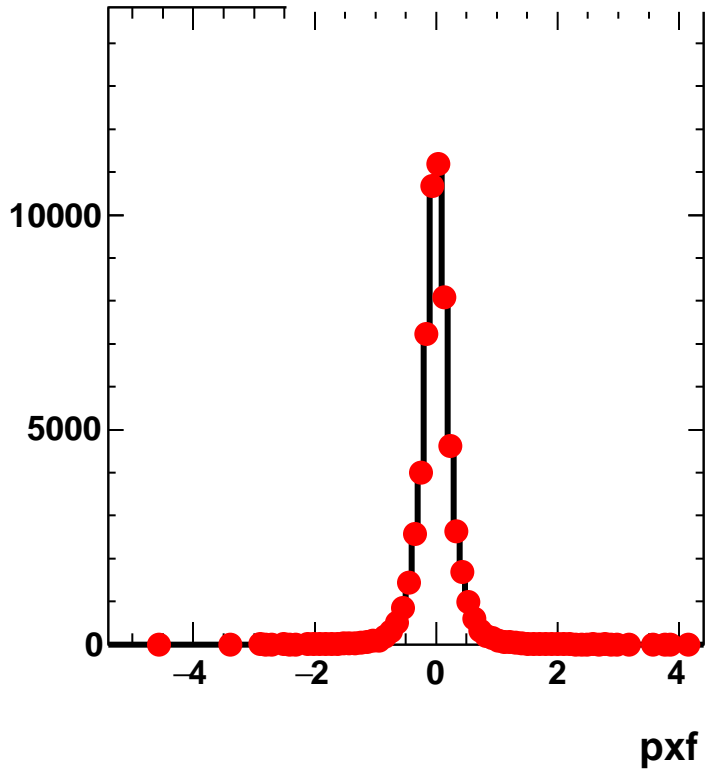
Final state pi0's 4-momentum / RES only



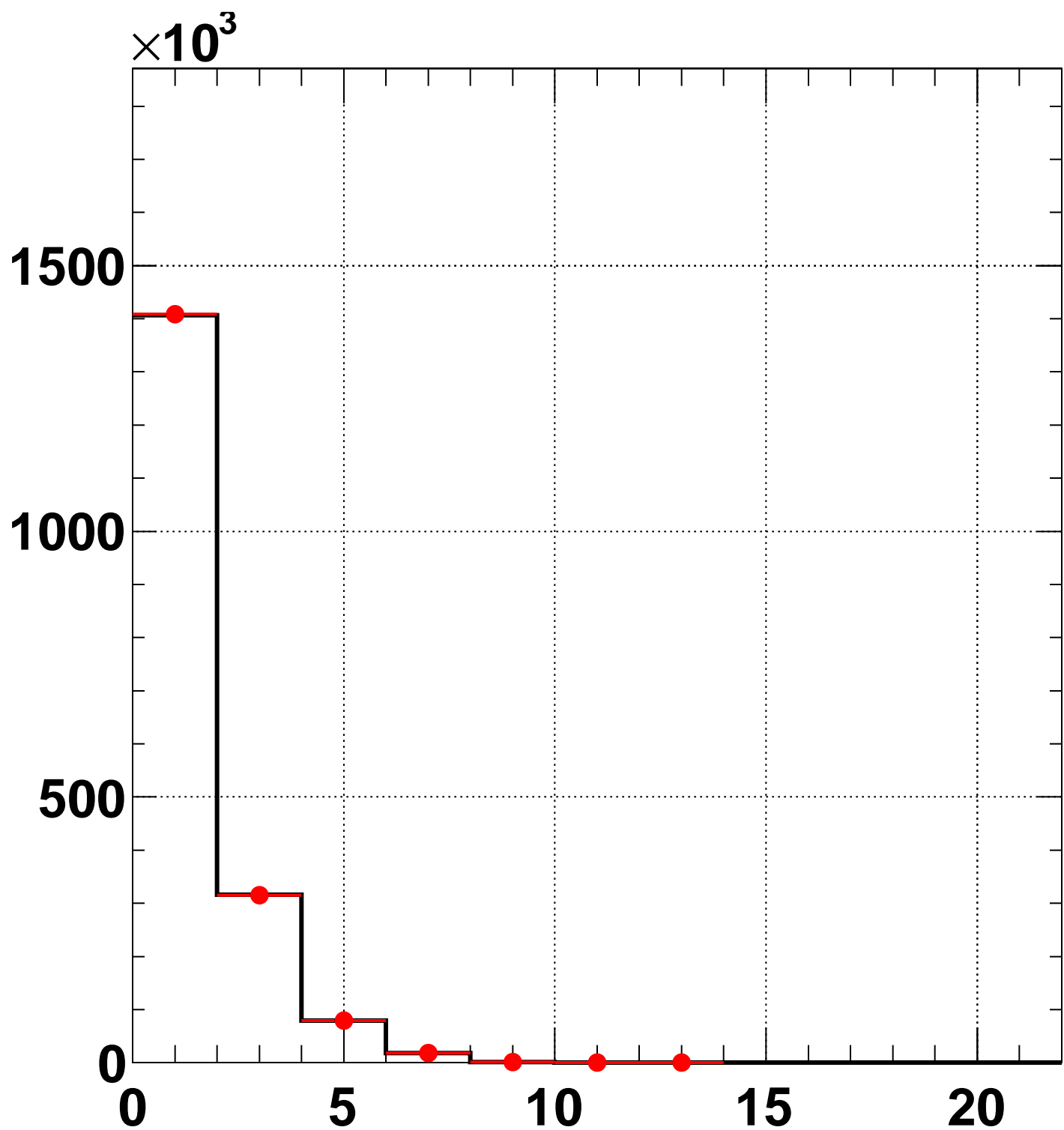
Final state pi+'s 4-momentum / RES only



Final state pi-'s 4-momentum/ RES only

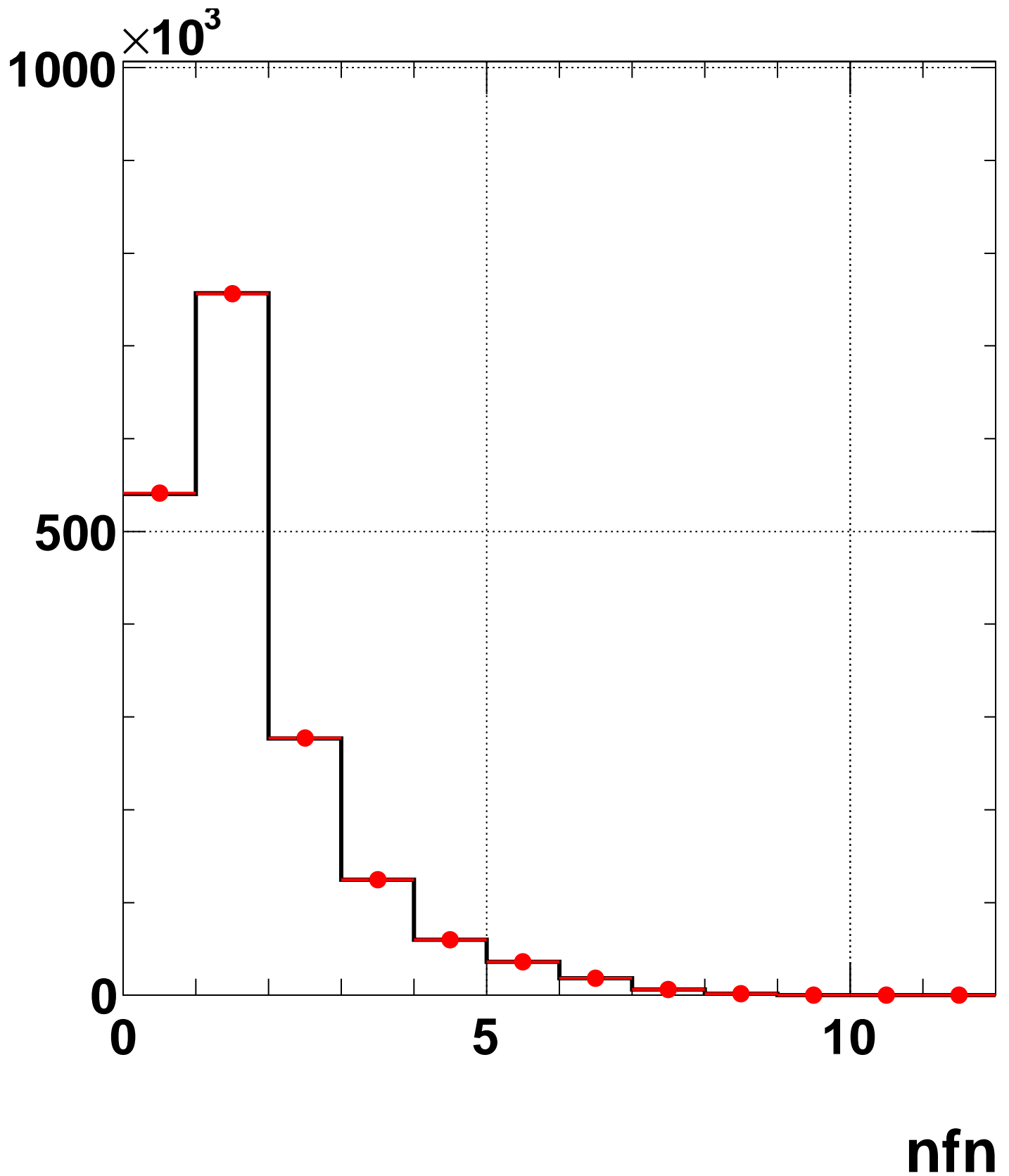


Number of final state protons / DIS only

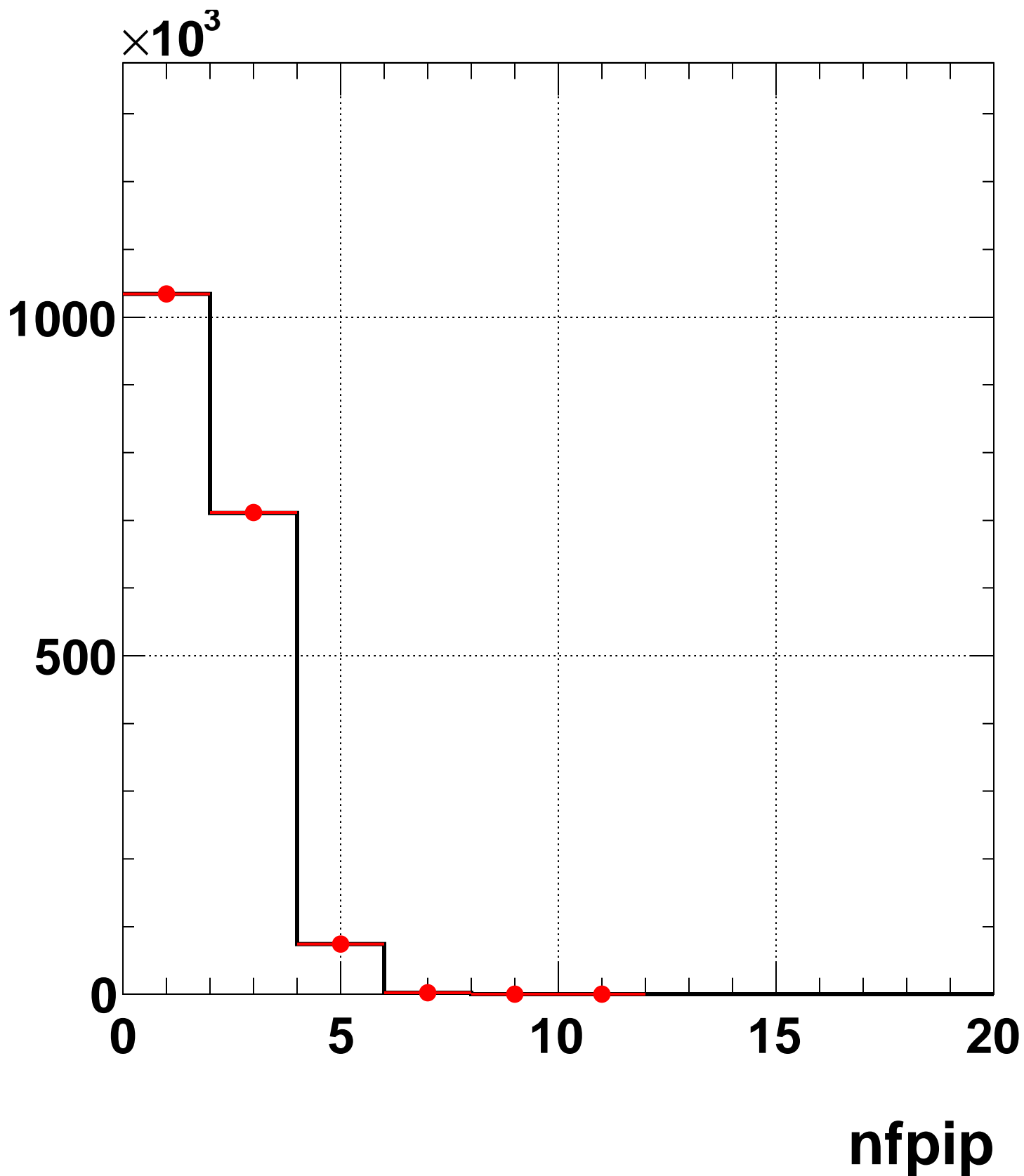


nfp

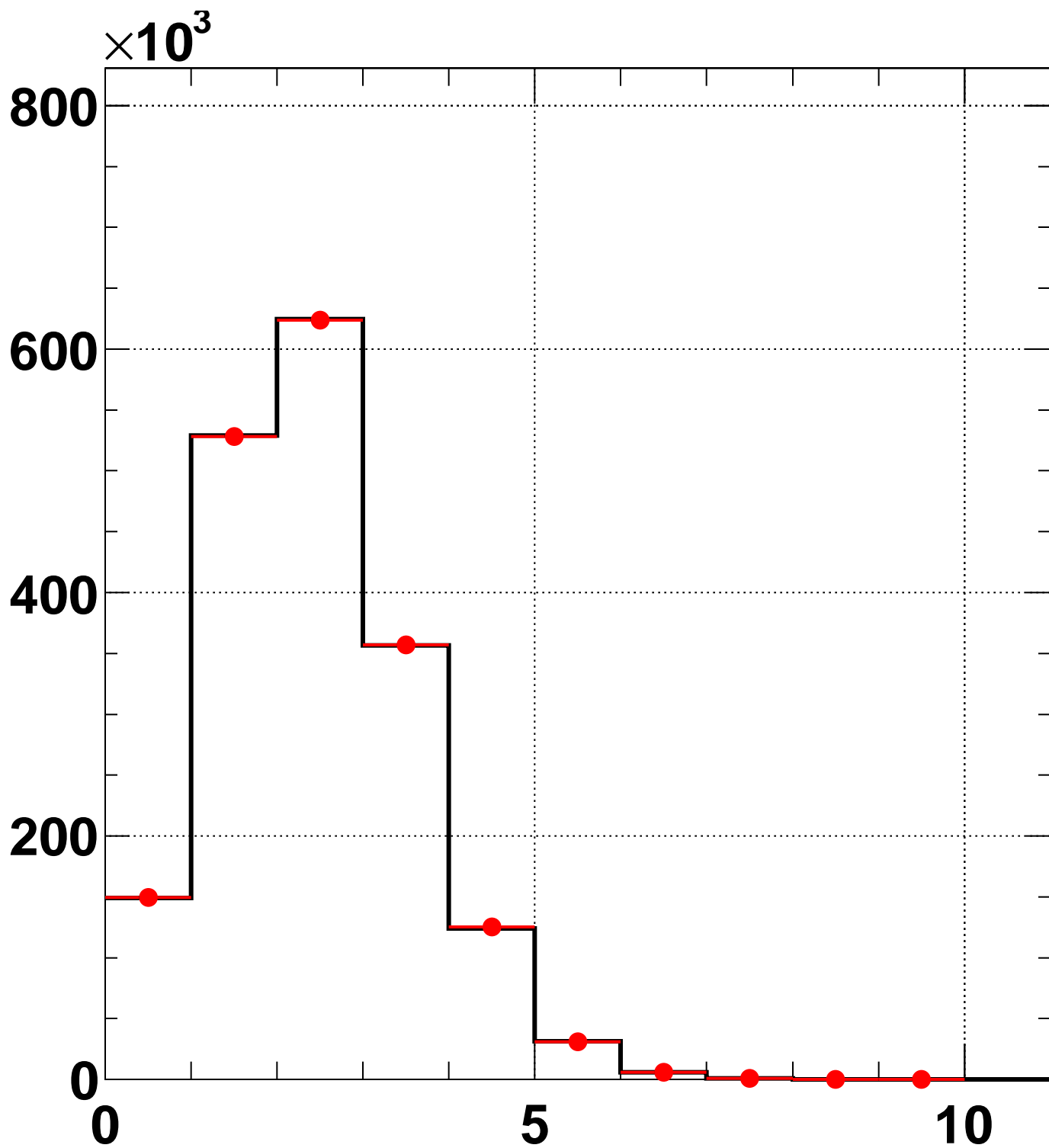
Number of final state neutrons / DIS only



Number of final state pi+ / DIS only

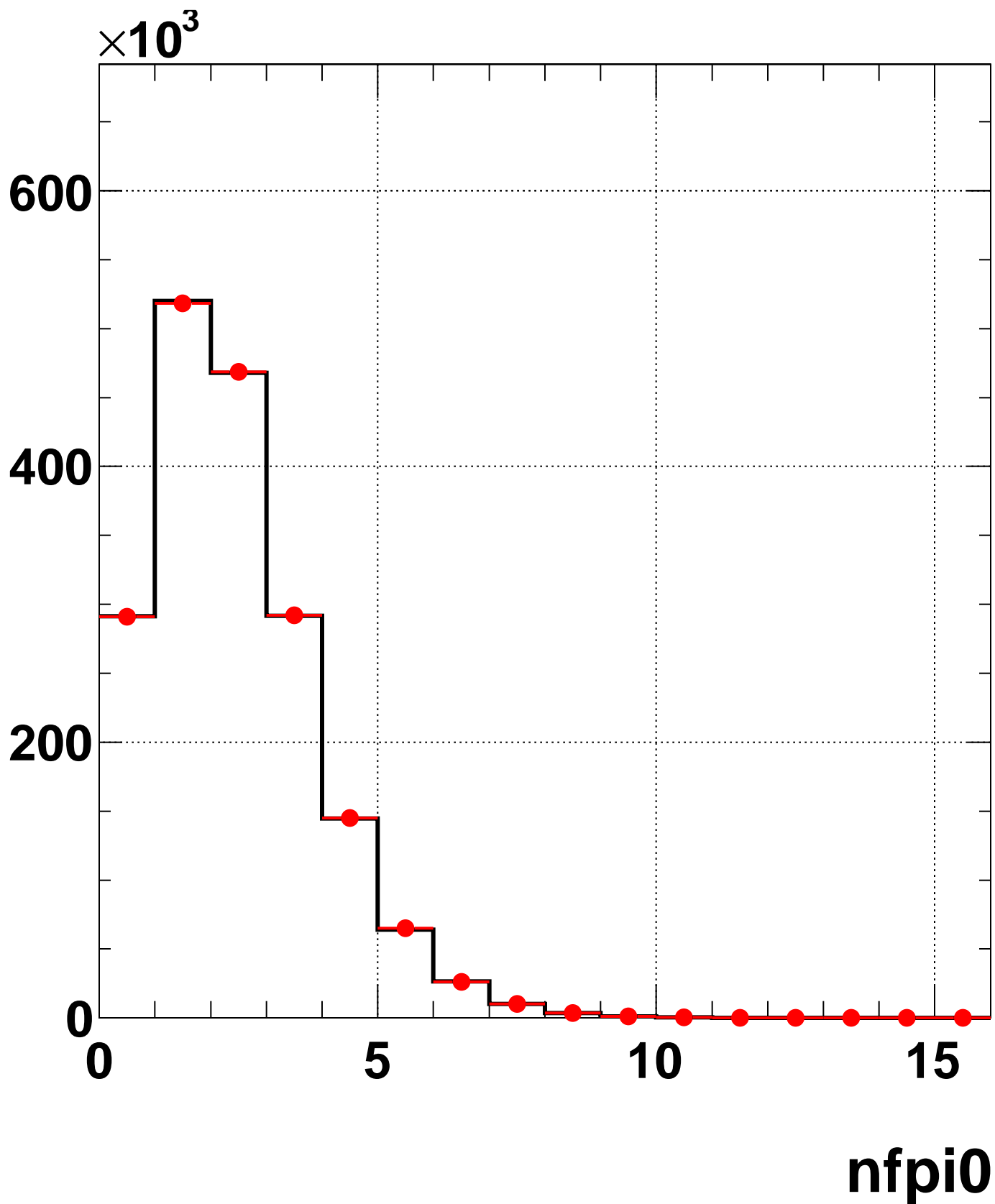


Number of final state pi- / DIS only

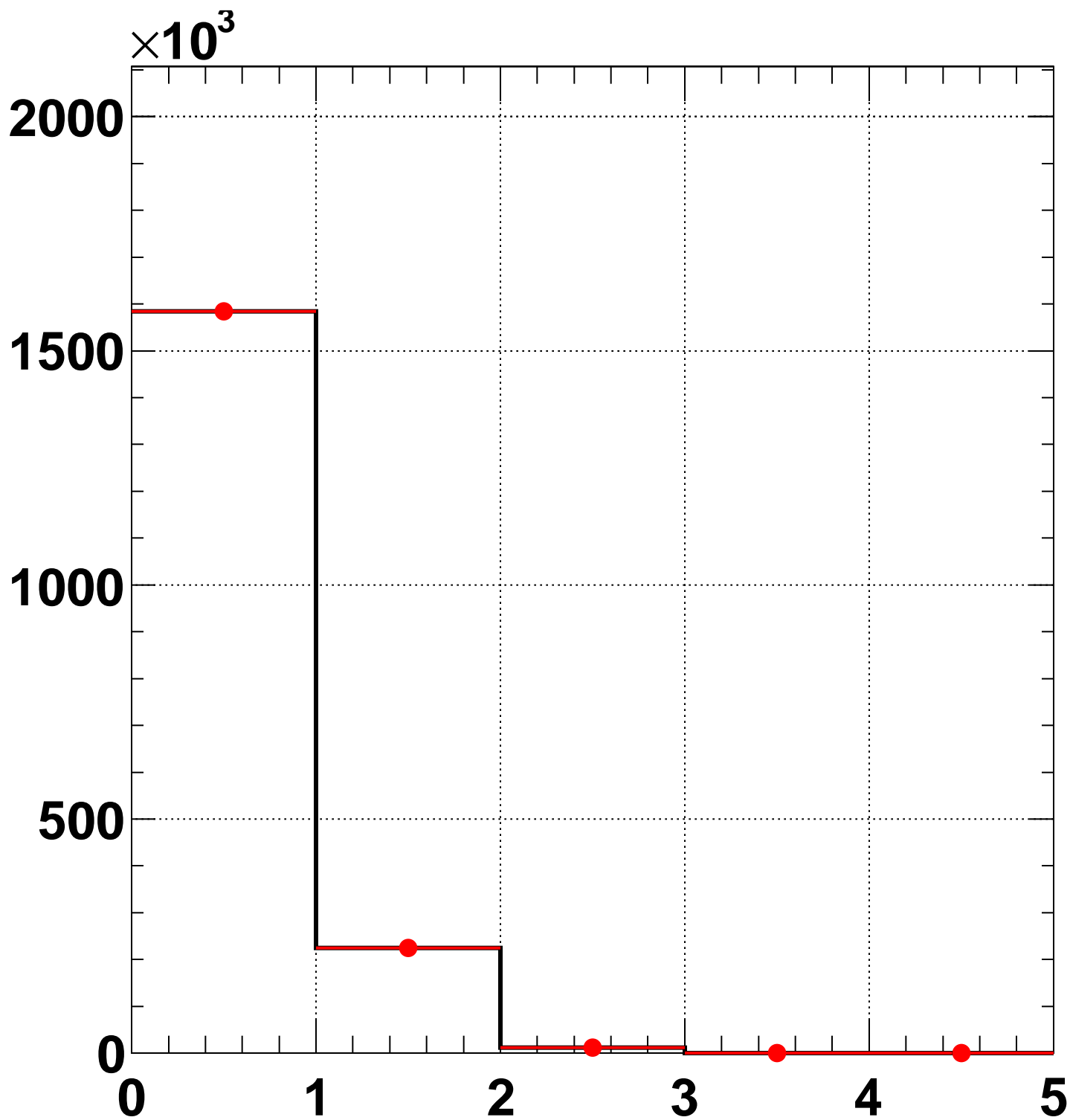


nfpim

Number of final state pi0 / DIS only

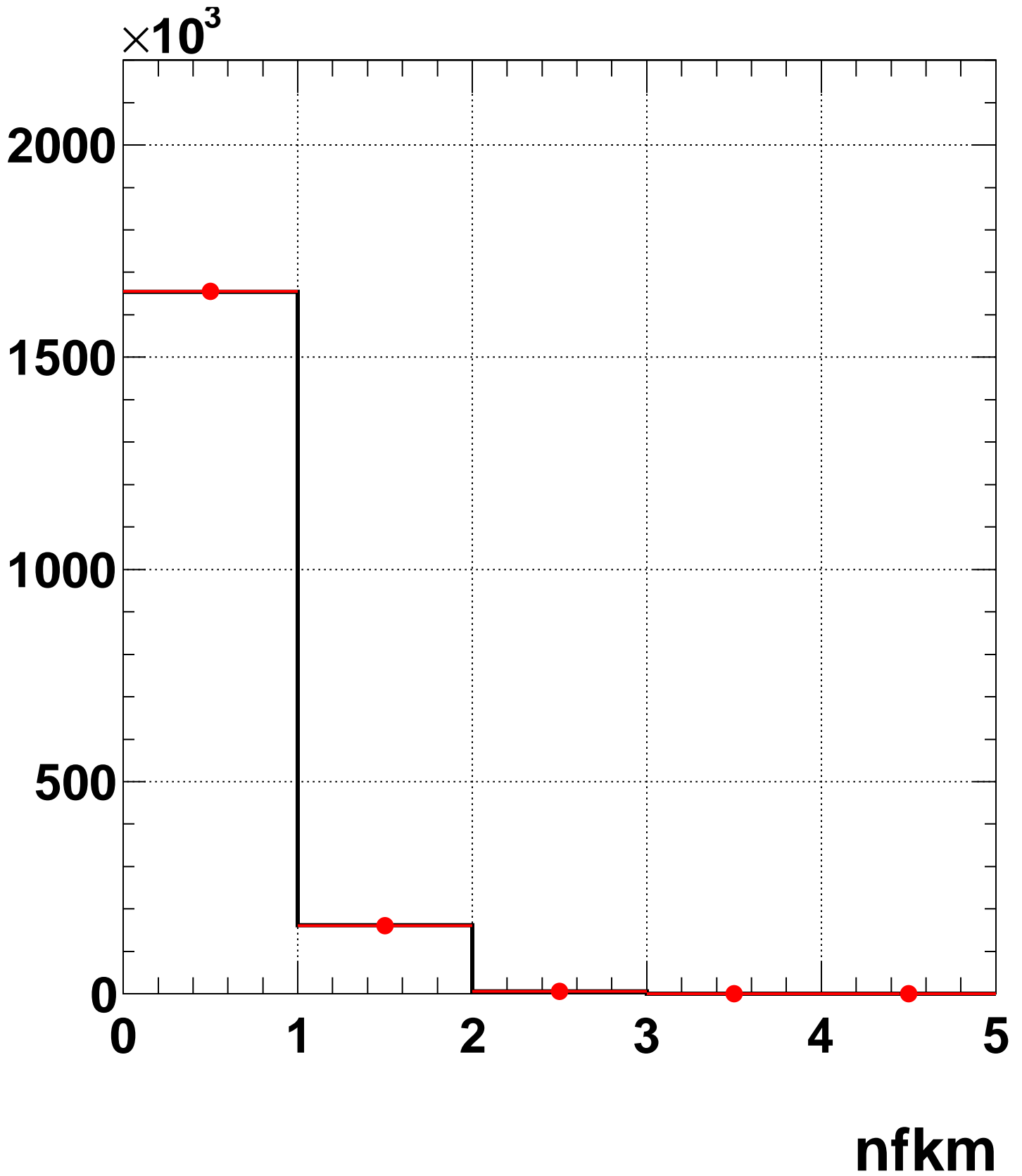


Number of final state K+ / DIS only

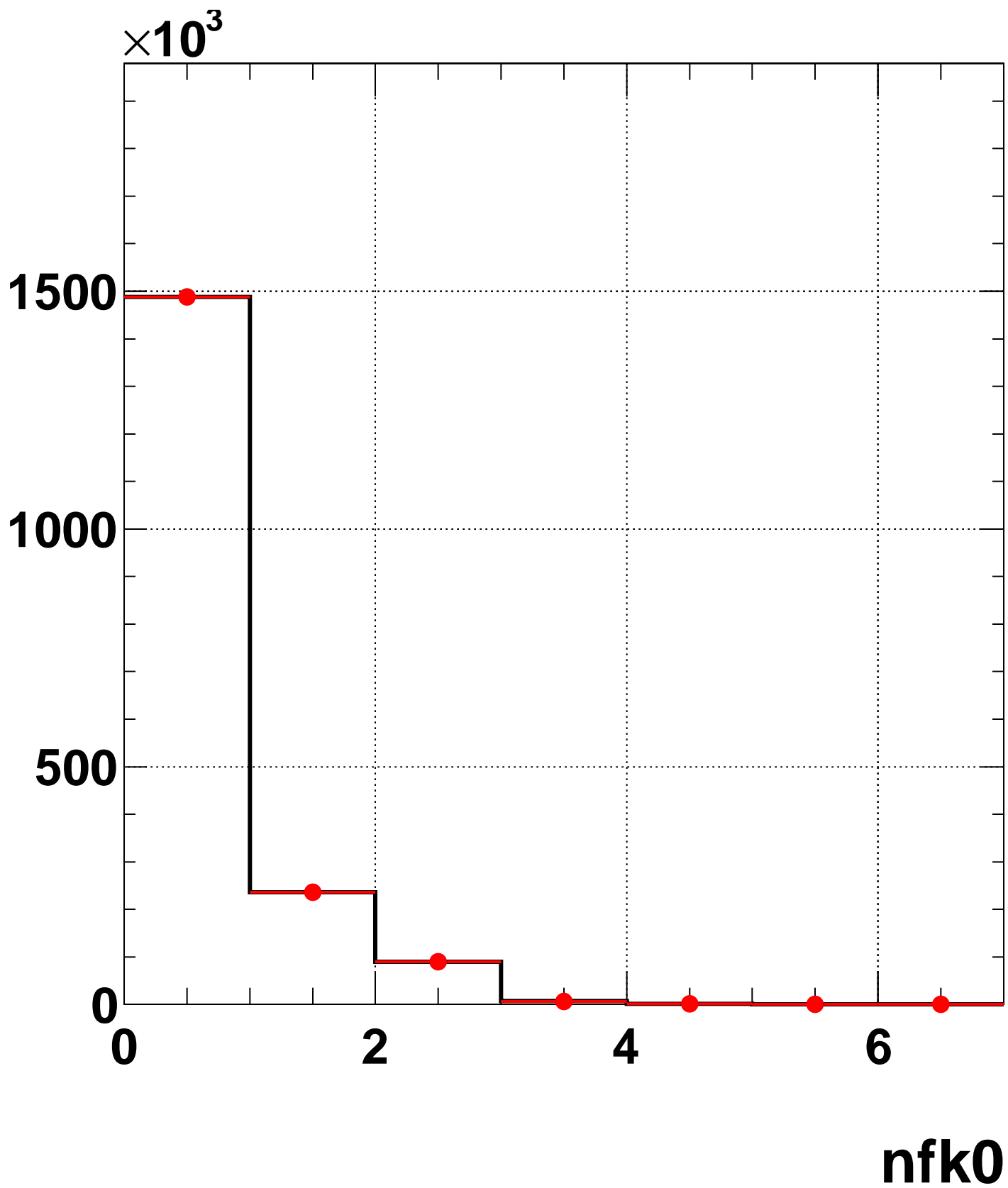


nfkp

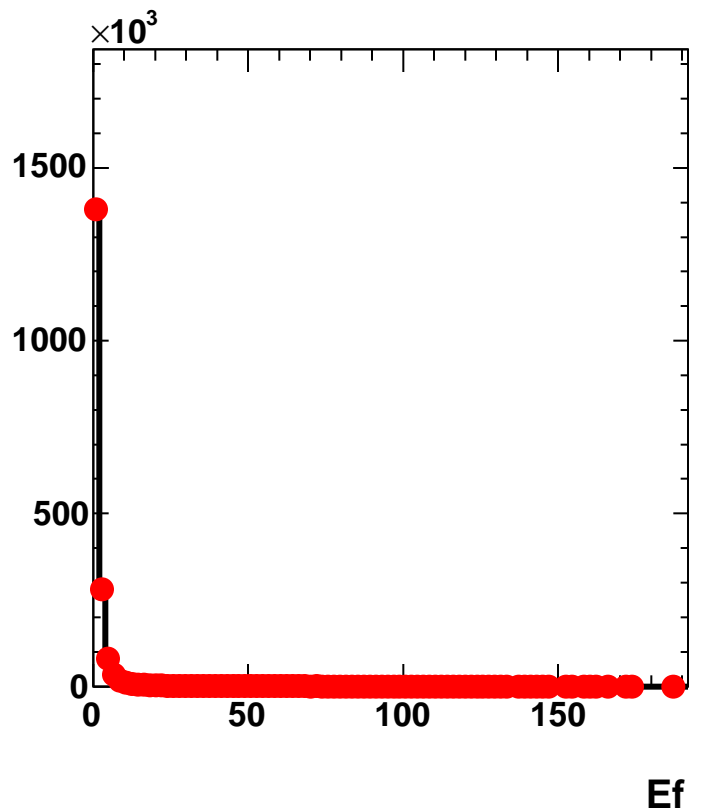
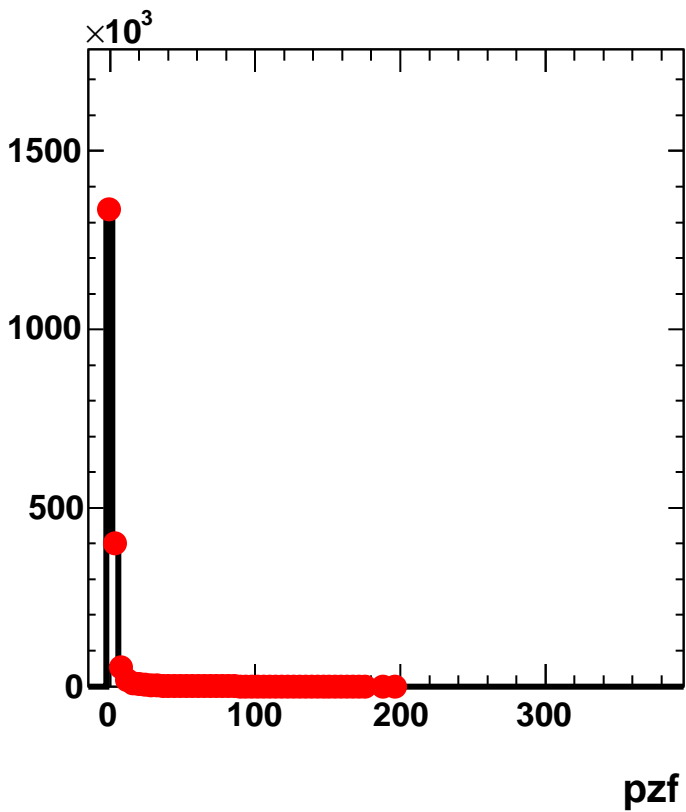
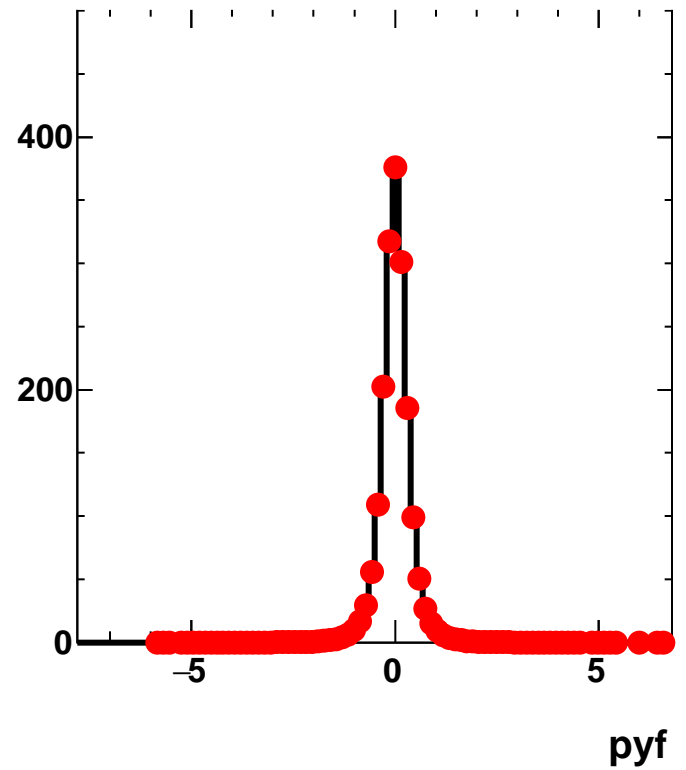
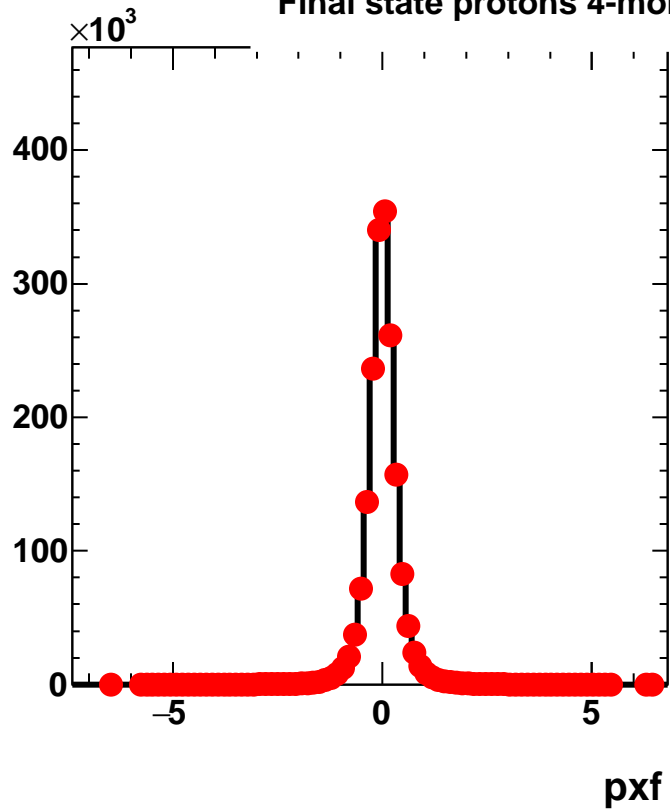
Number of final state K- / DIS only



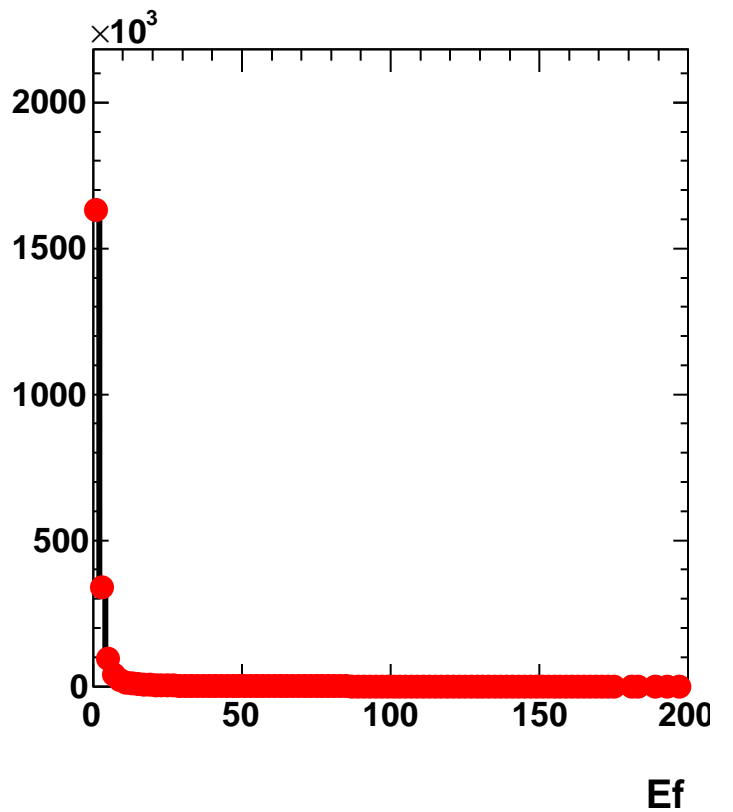
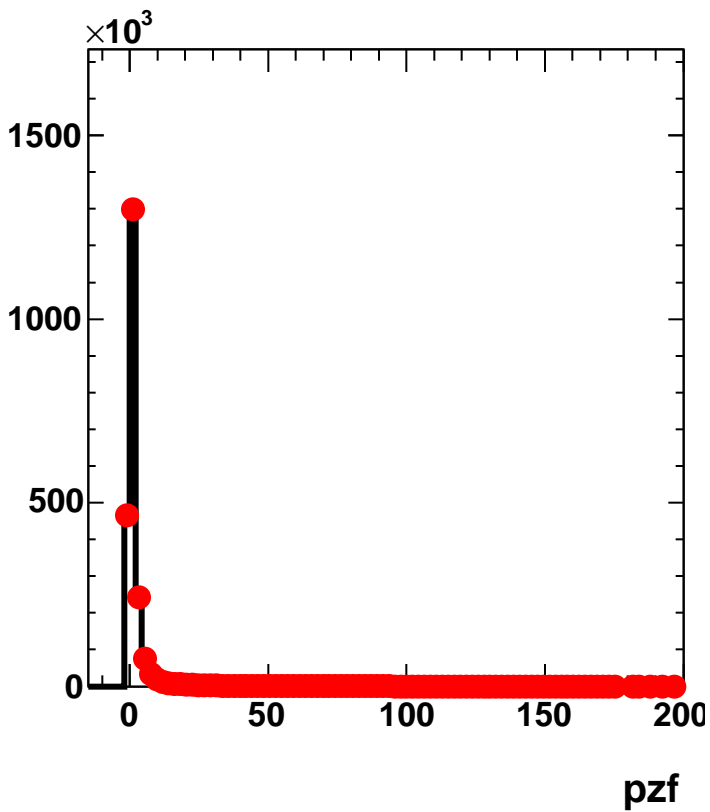
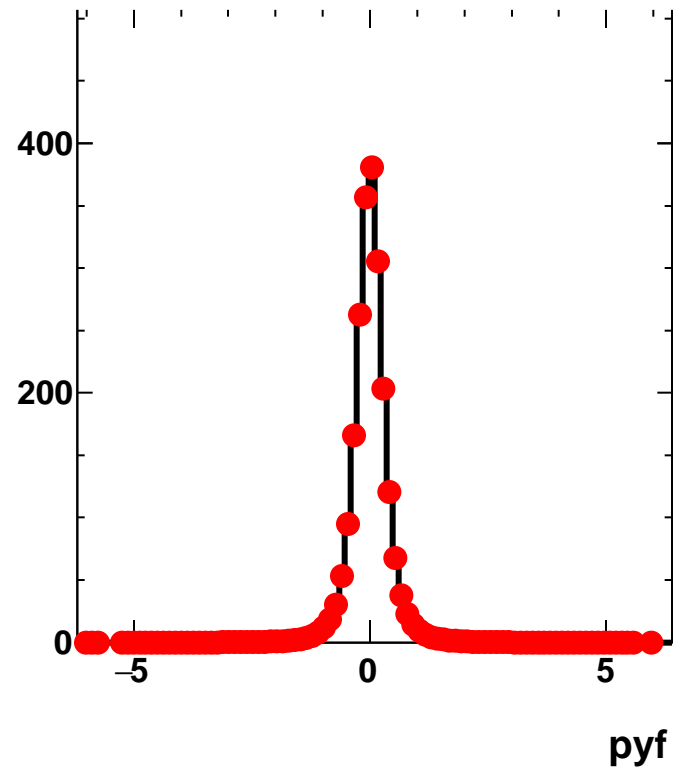
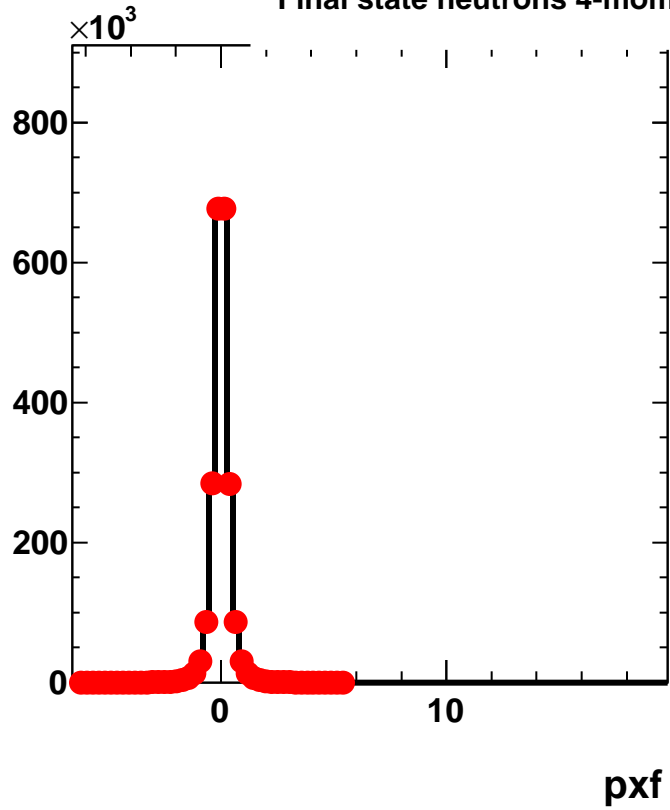
Number of final state K0 / DIS only



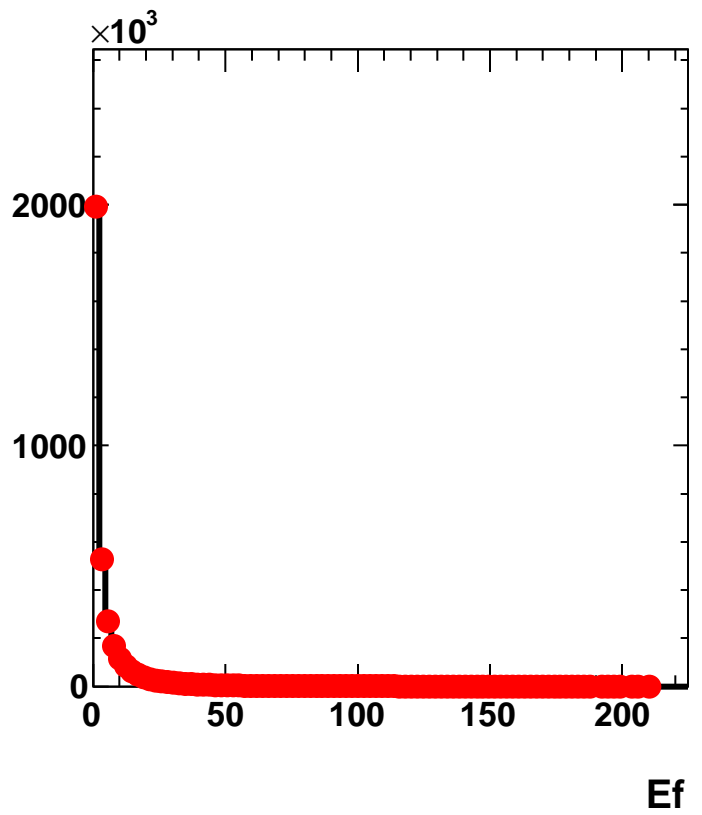
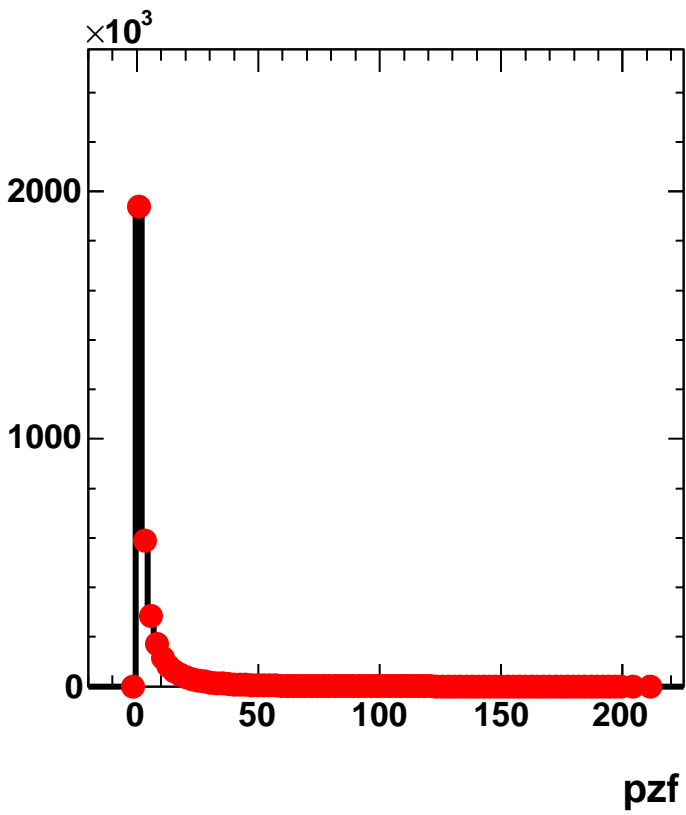
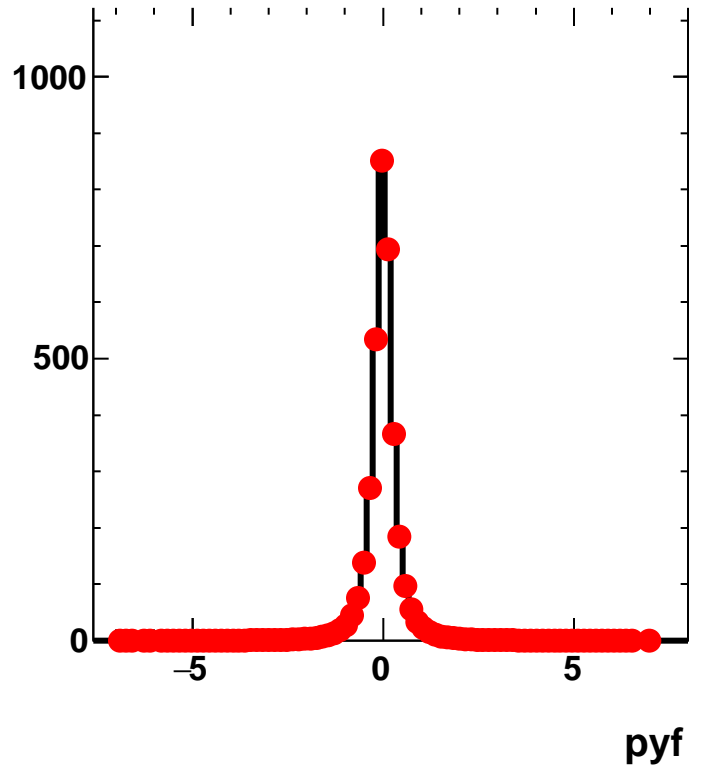
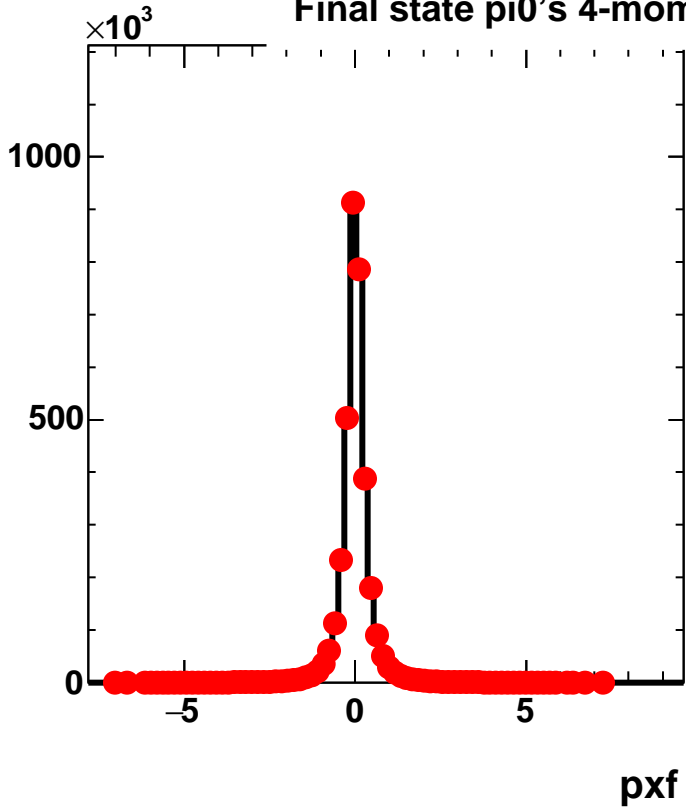
Final state protons 4-momentum / DIS only



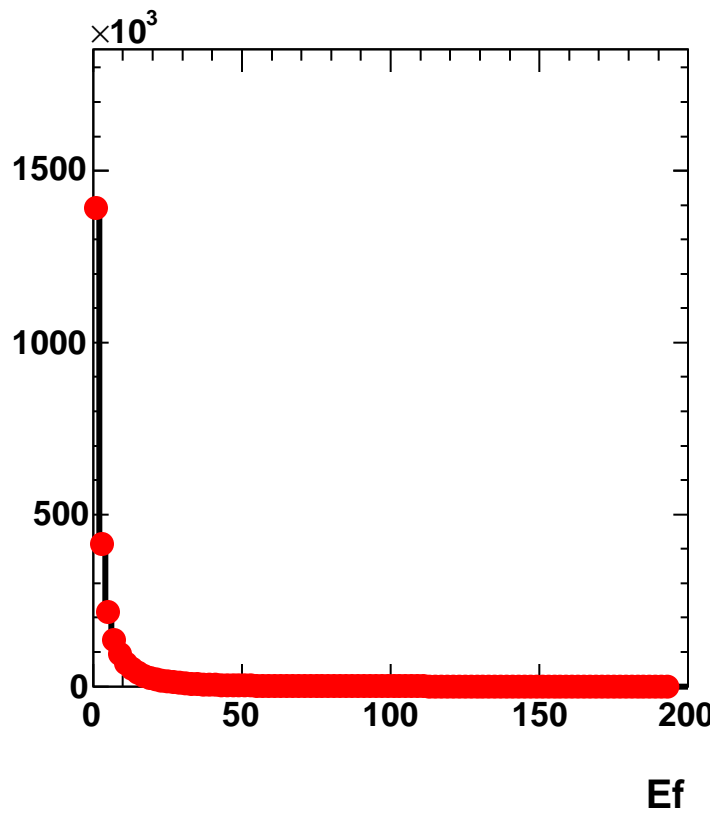
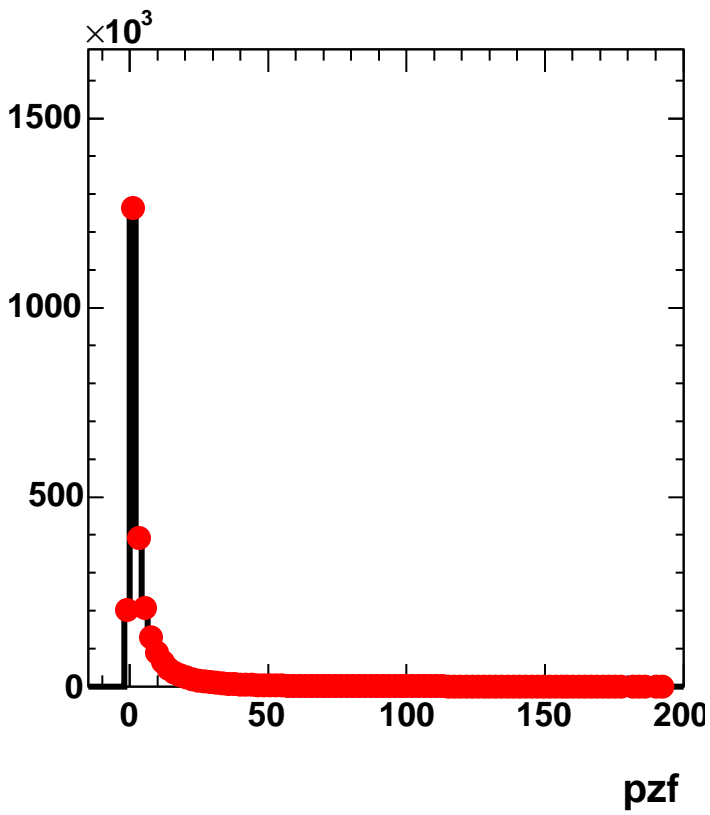
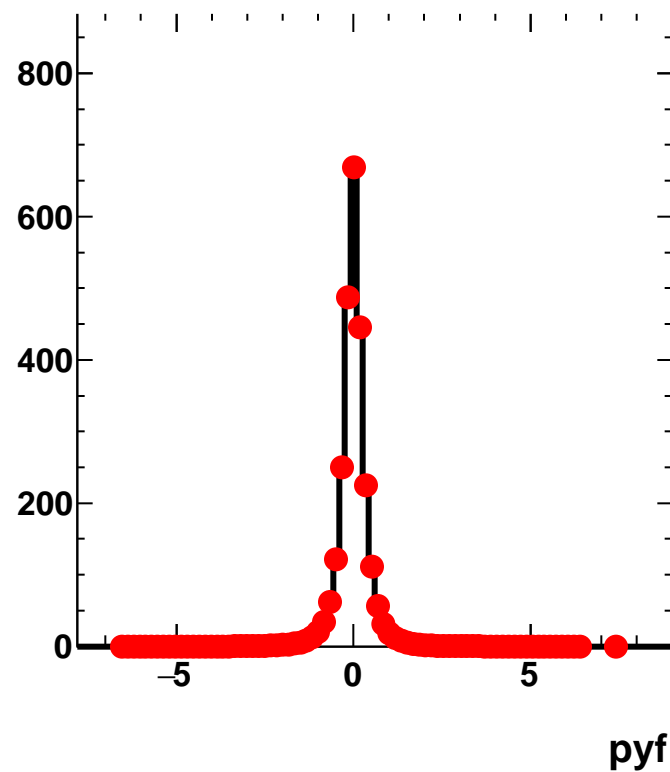
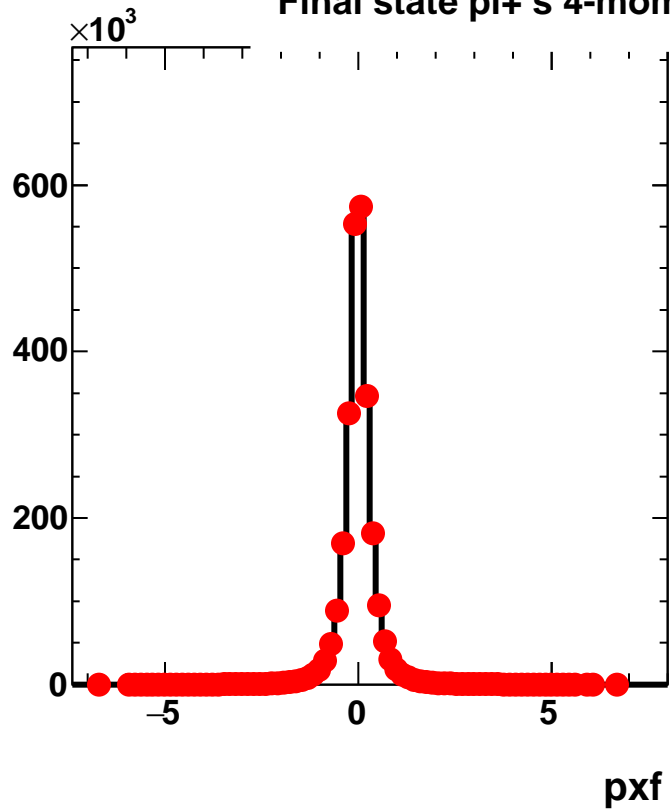
Final state neutrons 4-momentum / DIS only



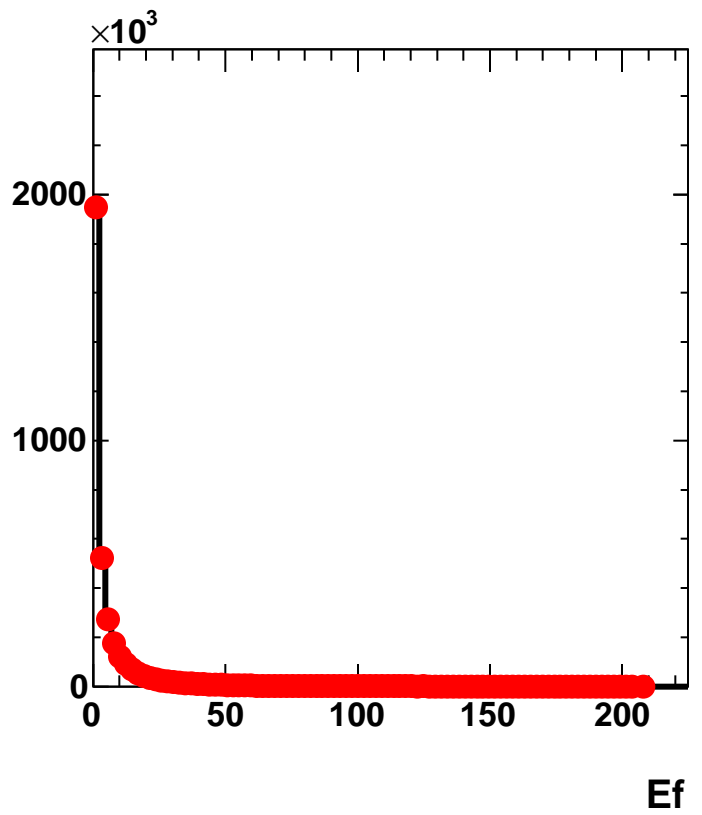
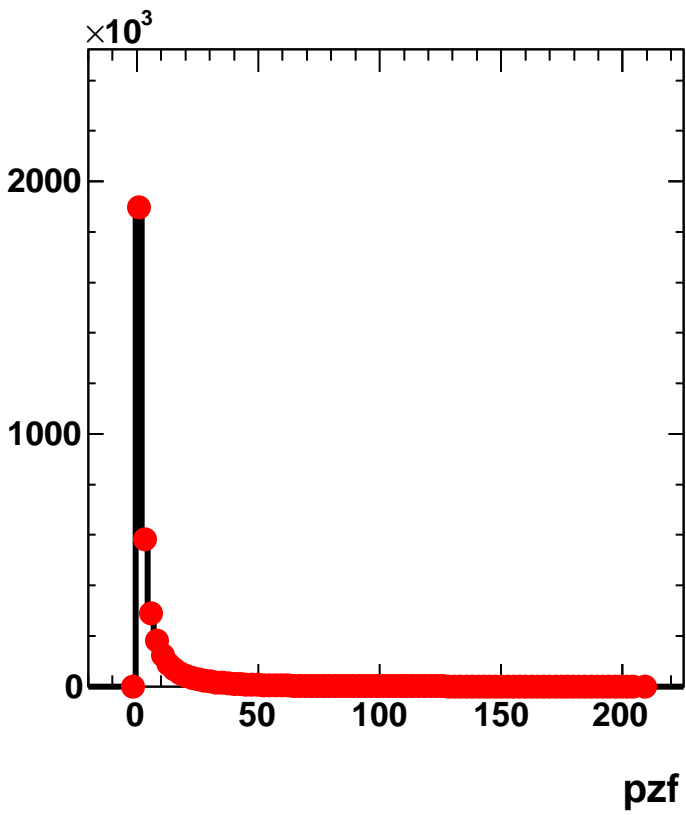
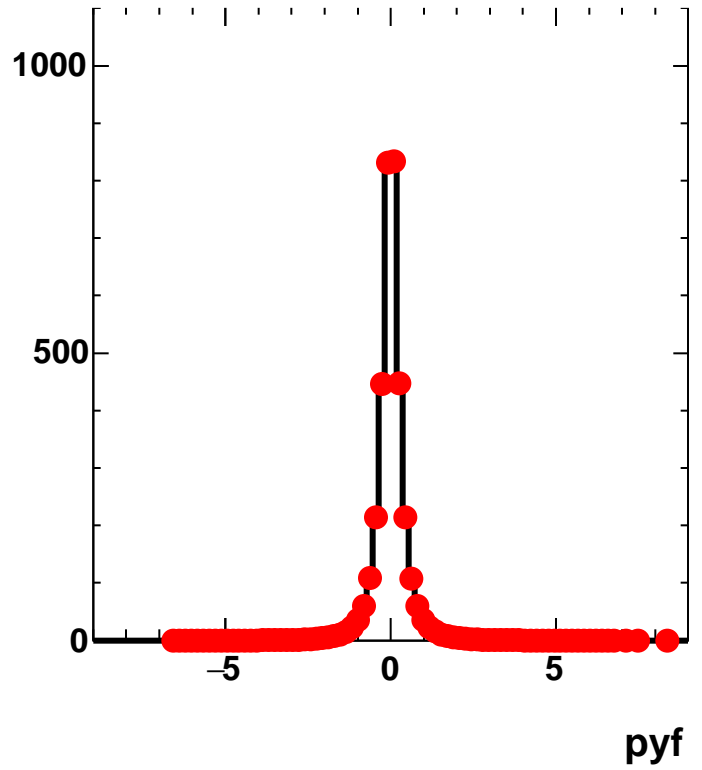
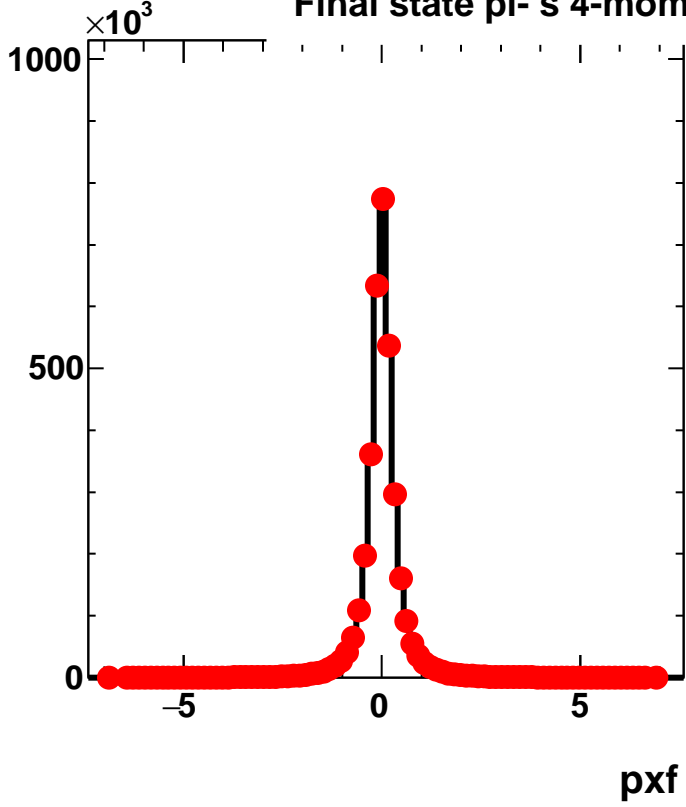
Final state pi0's 4-momentum / DIS only



Final state pi+'s 4-momentum / DIS only



Final state pi-'s 4-momentum/ DIS only

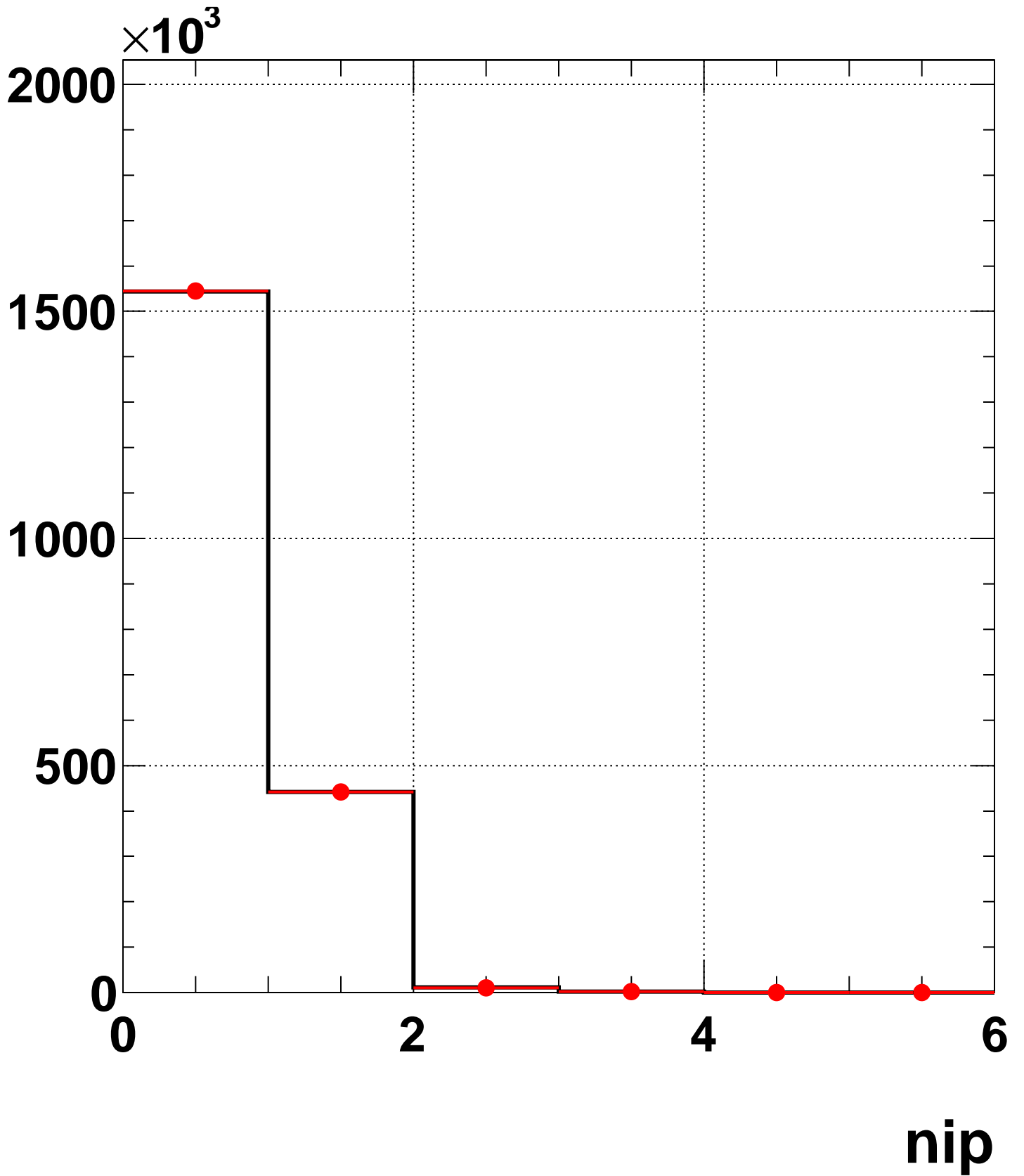


**Primary Hadronic System
Multiplicities and 4-Momenta**

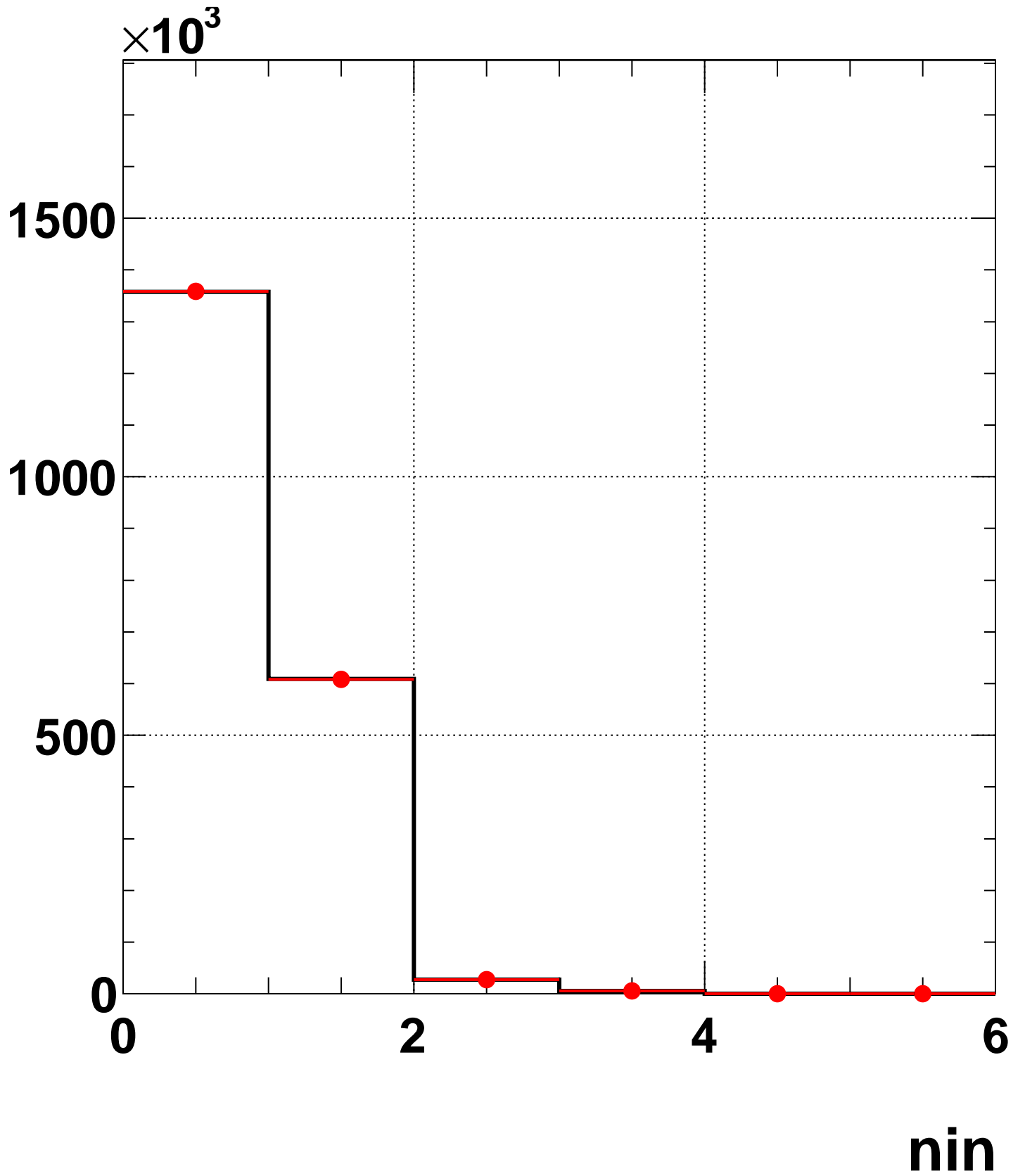
Note:

**For nuclear targets these plots show the hadronic system
BEFORE any intranuclear hadron transport / rescattering**

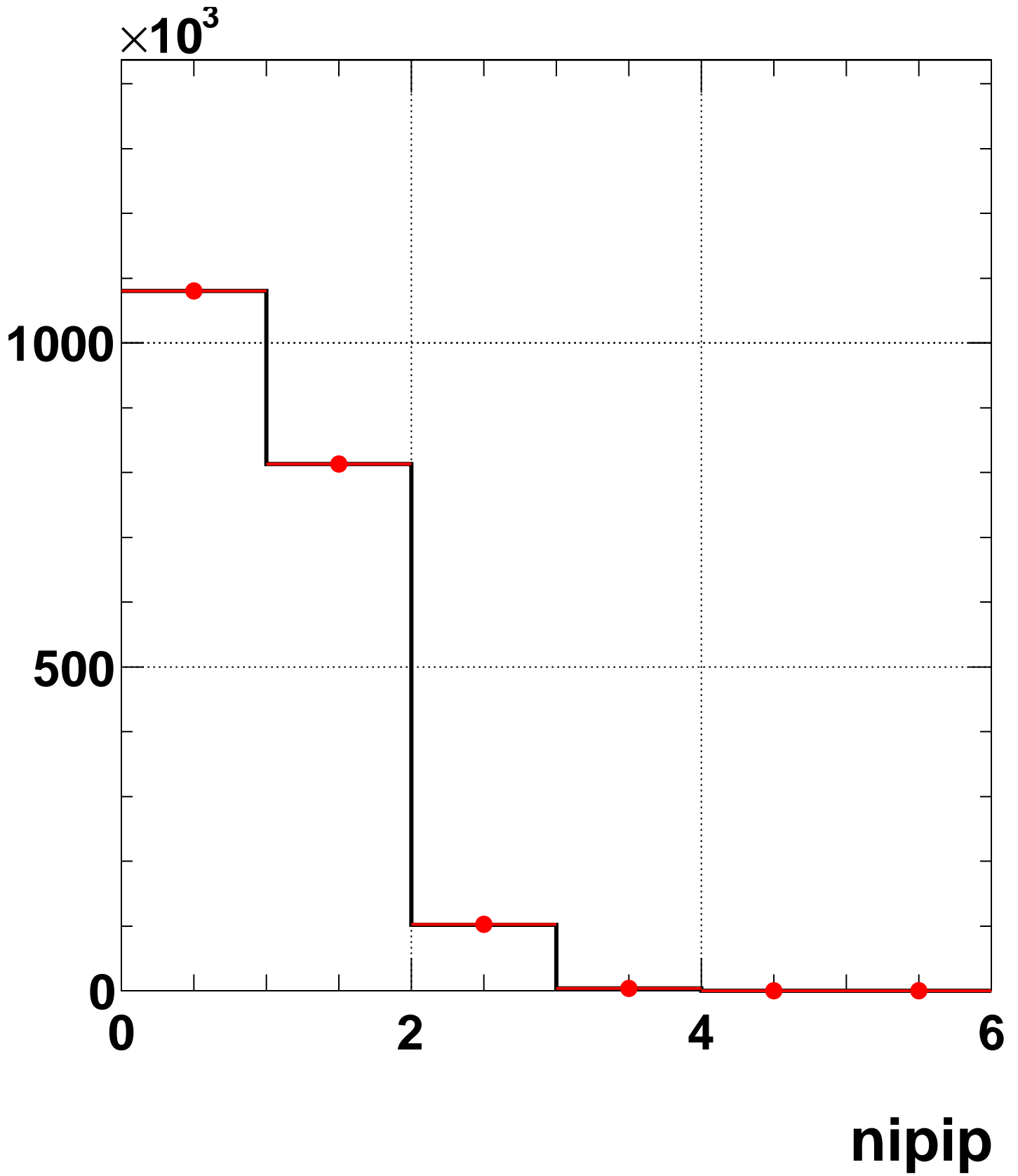
Primary Hadronic System: Number of protons



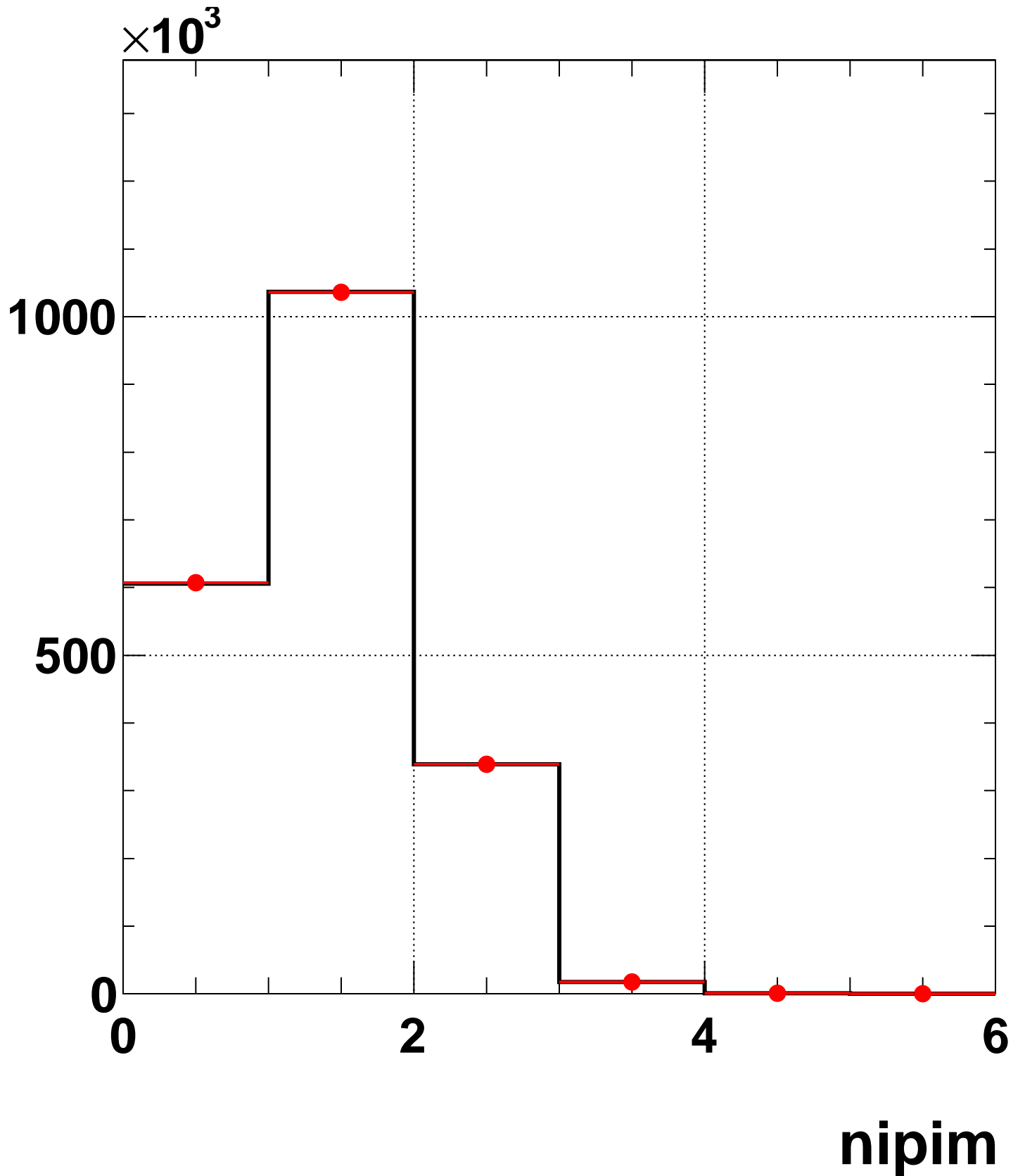
Primary Hadronic System: Number of neutrons



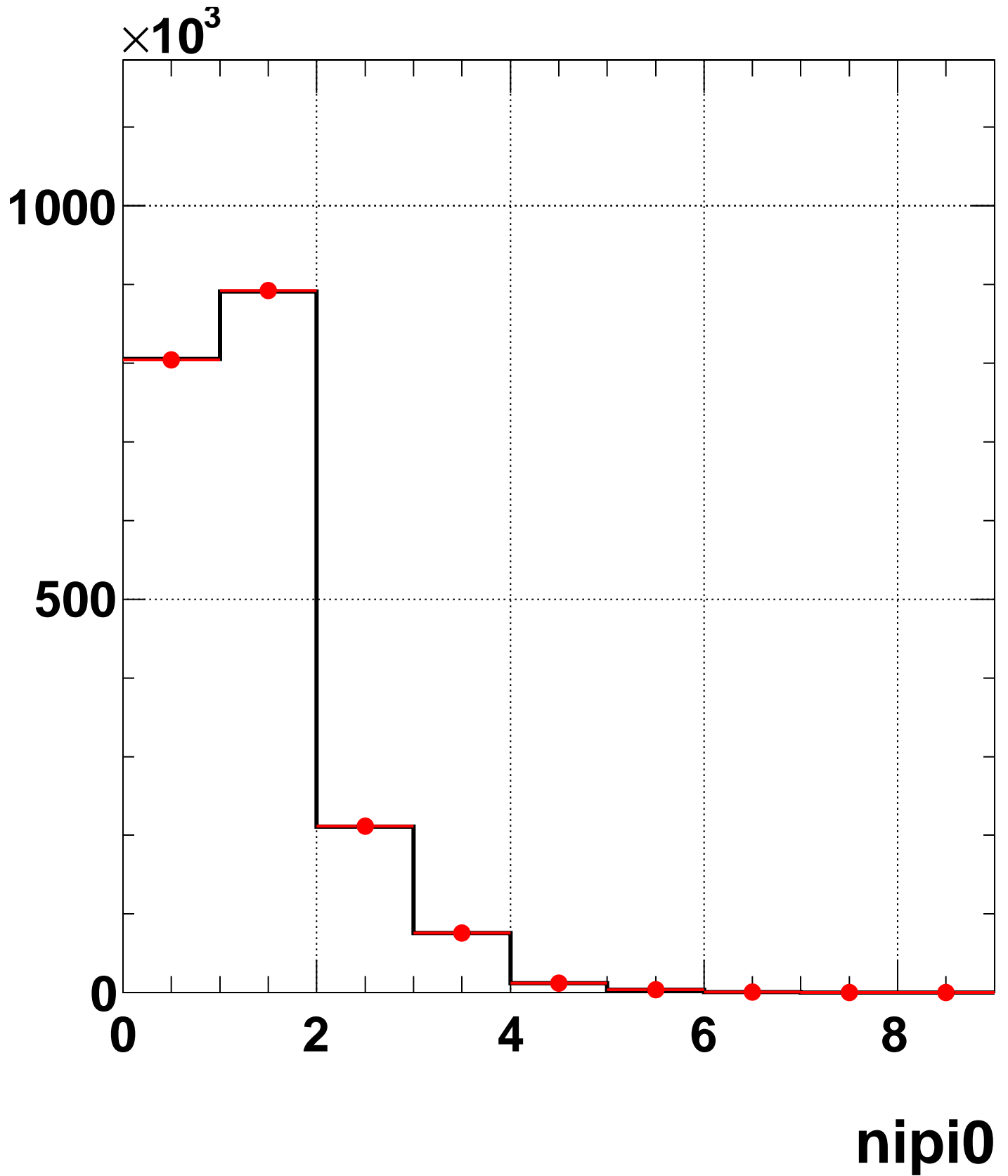
Primary Hadronic System: Number of pi+



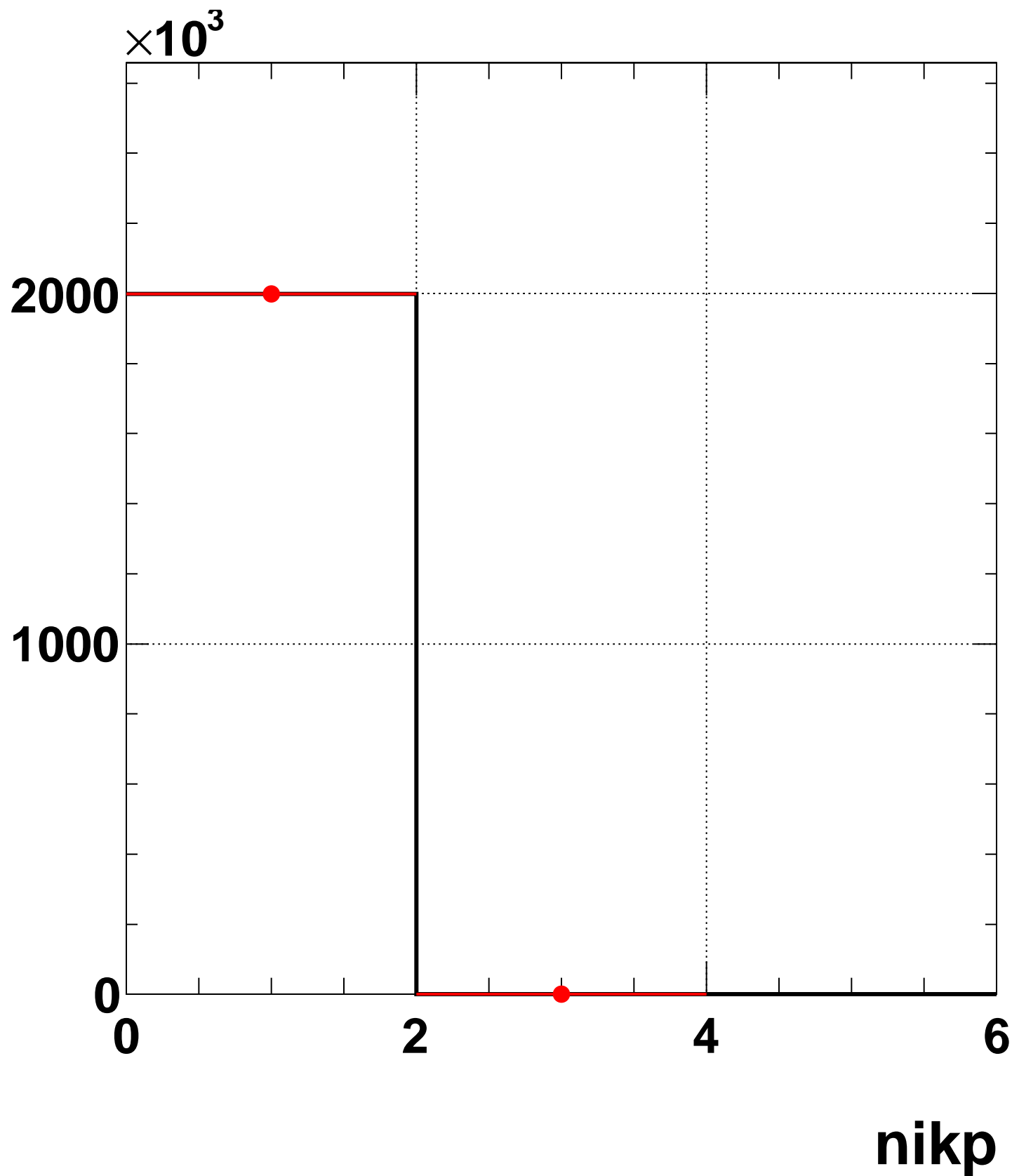
Primary Hadronic System: Number of pi-



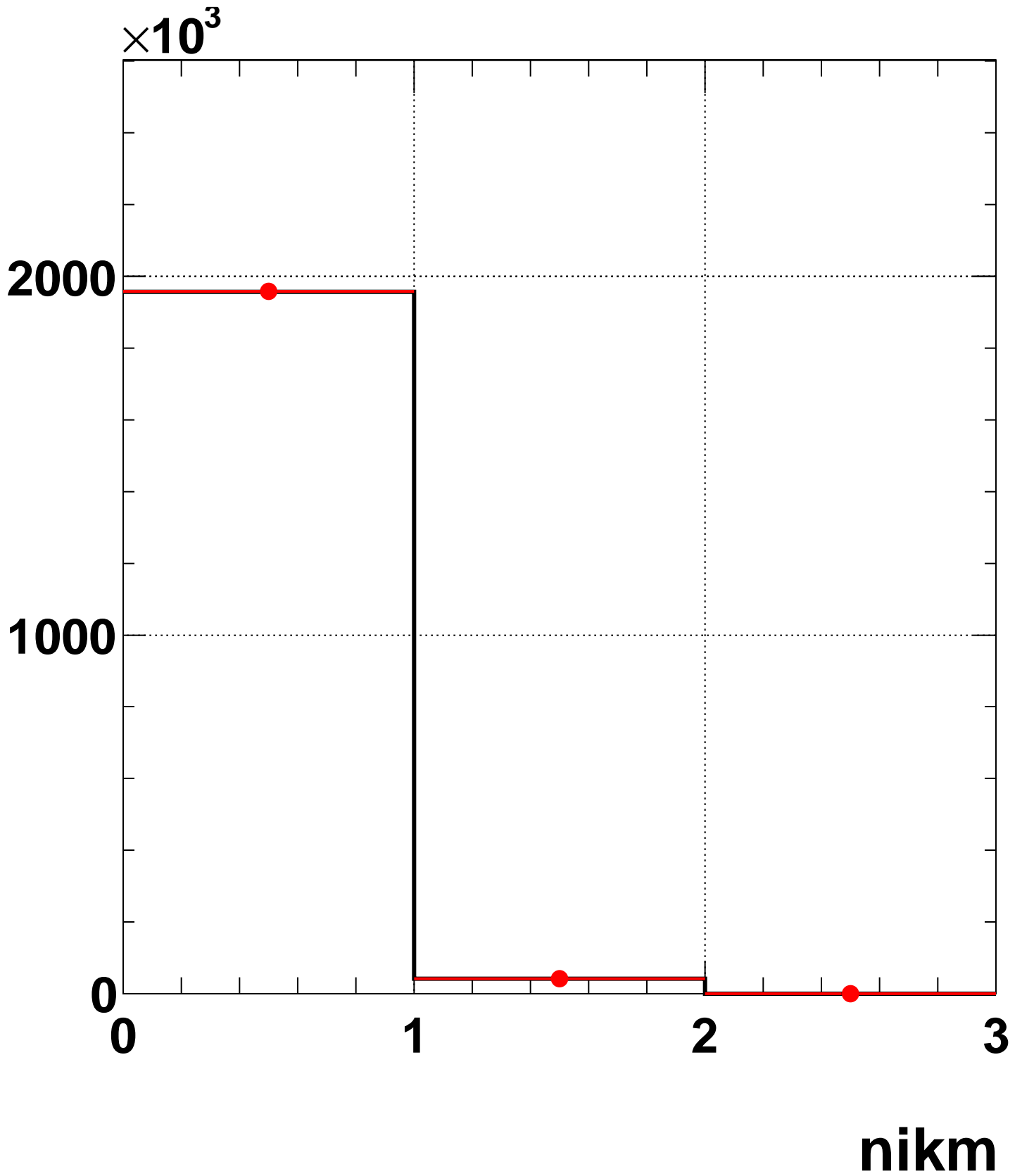
Primary Hadronic System: Number of pi0



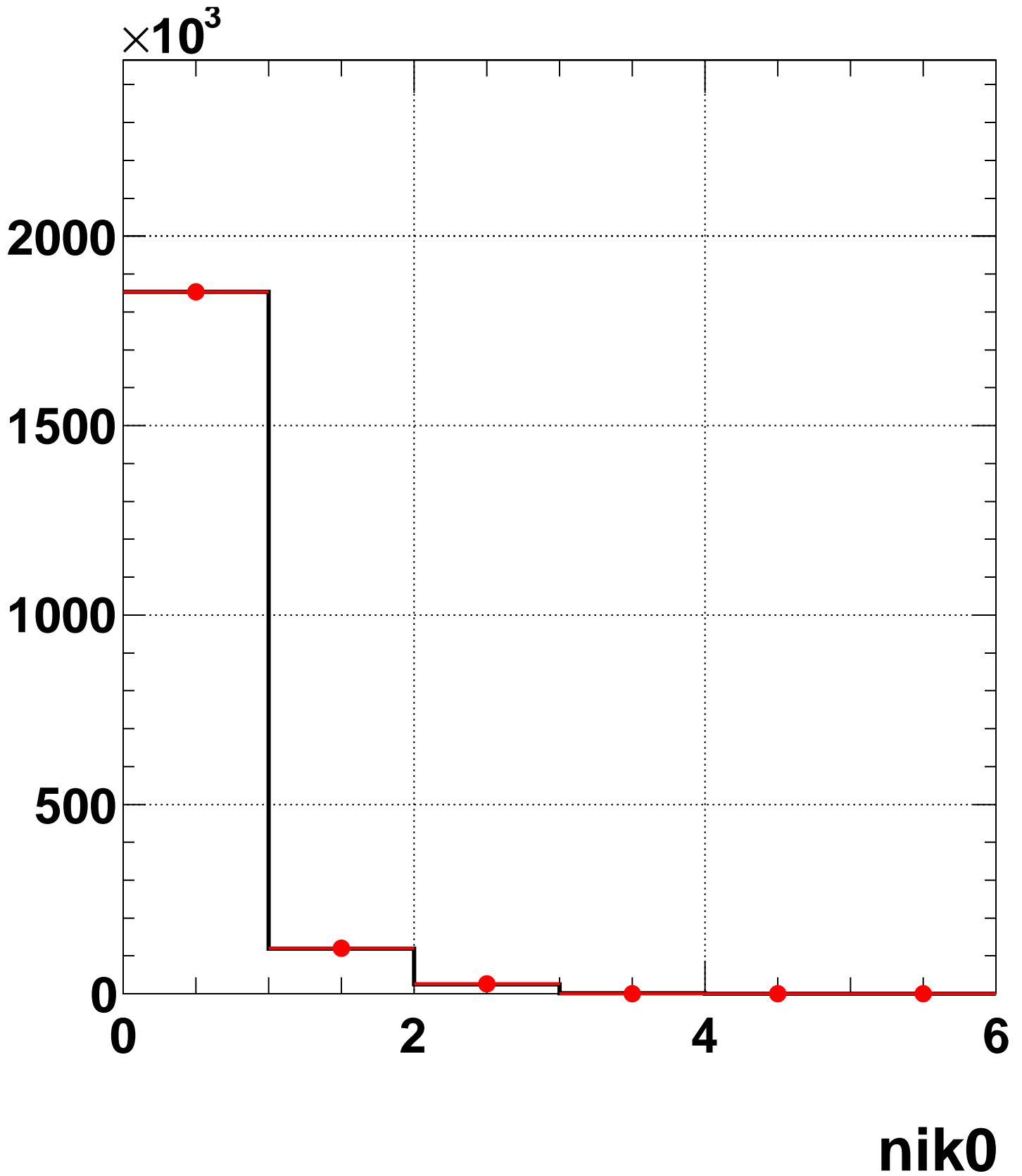
Primary Hadronic System: Number of K+



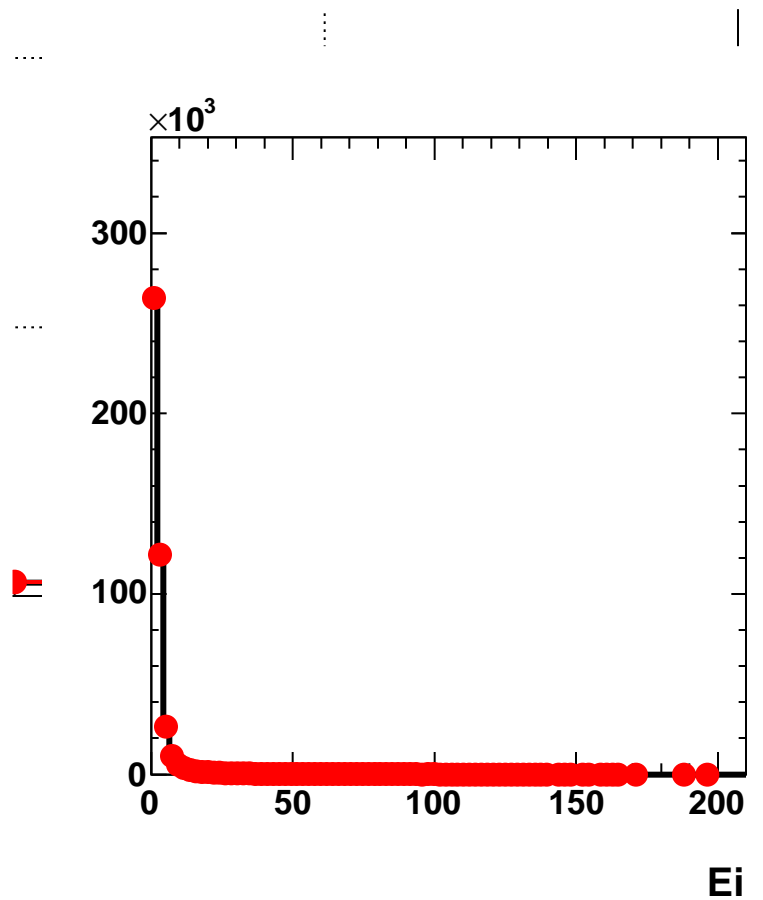
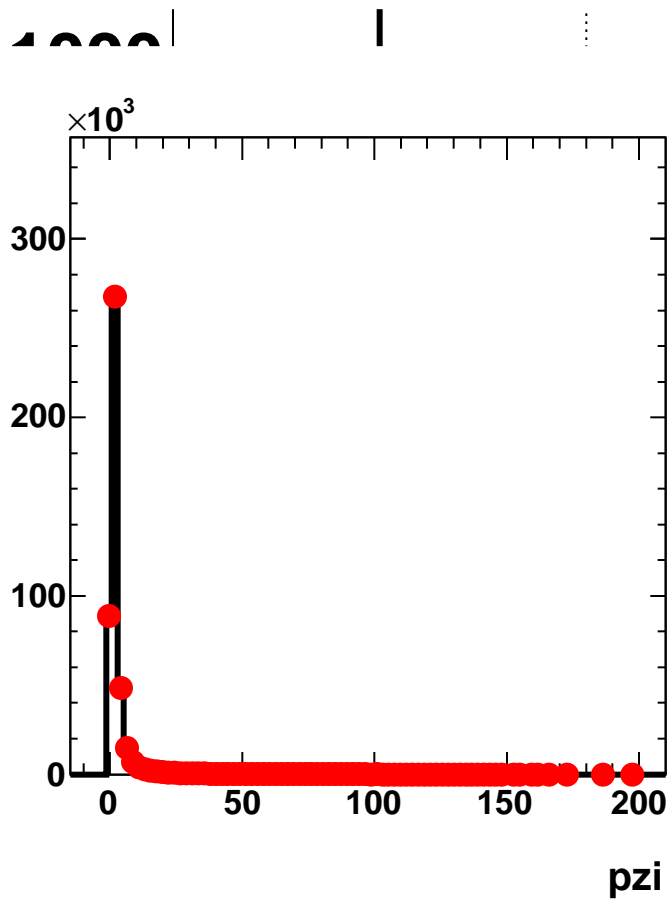
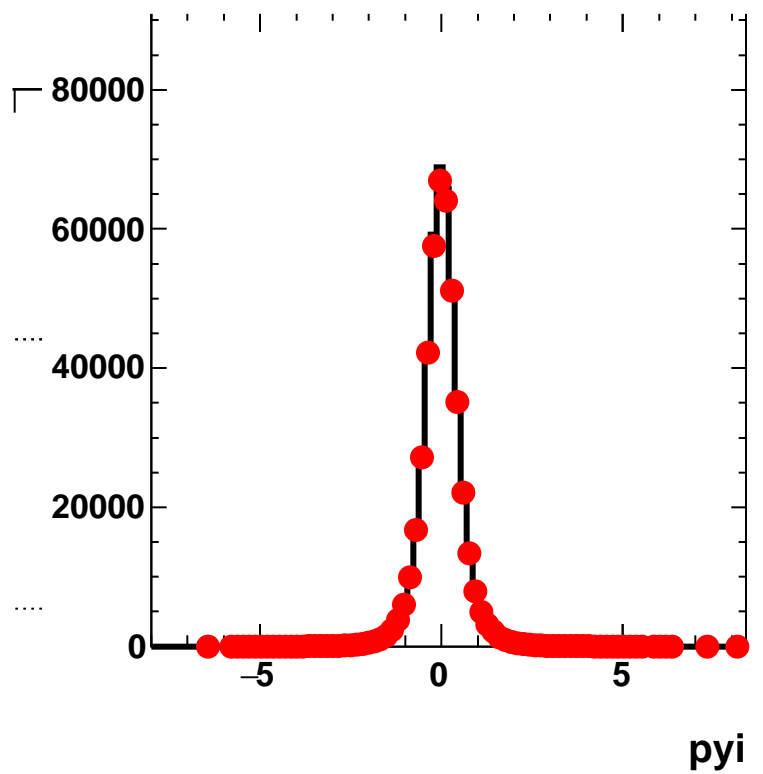
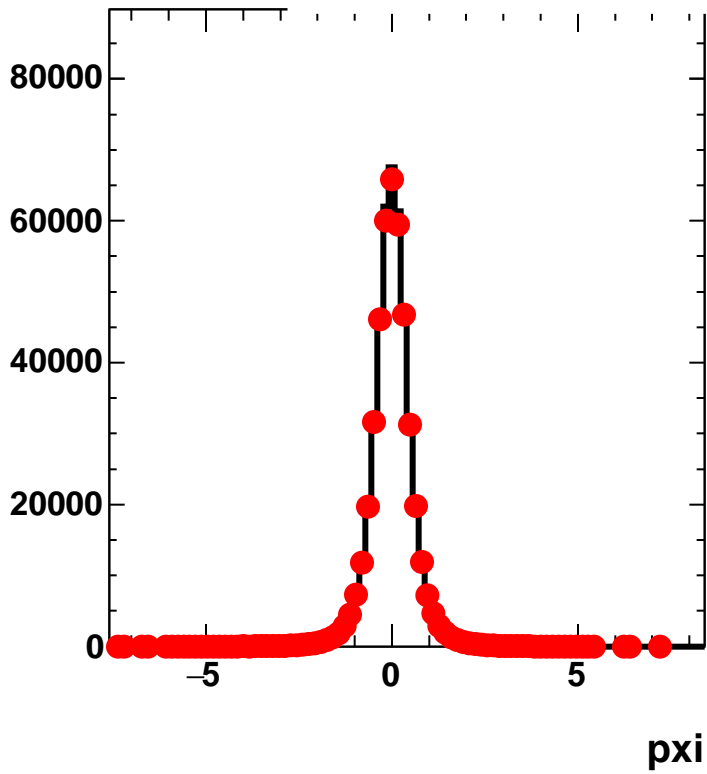
Primary Hadronic System: Number of K-



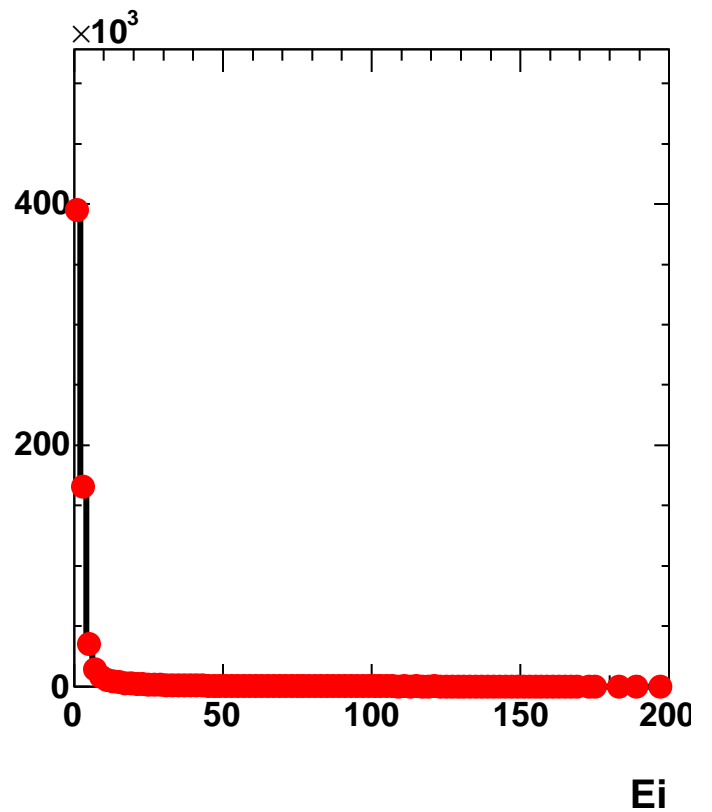
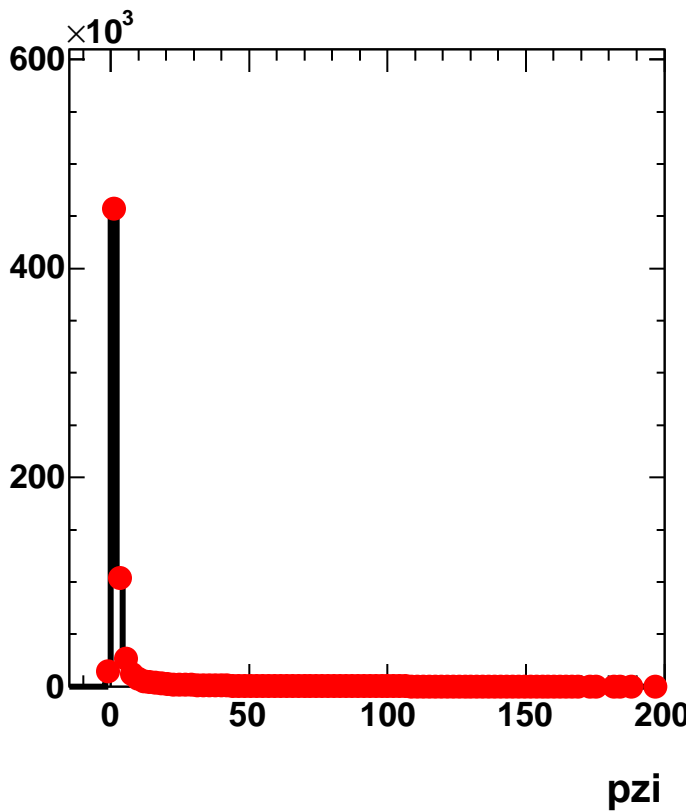
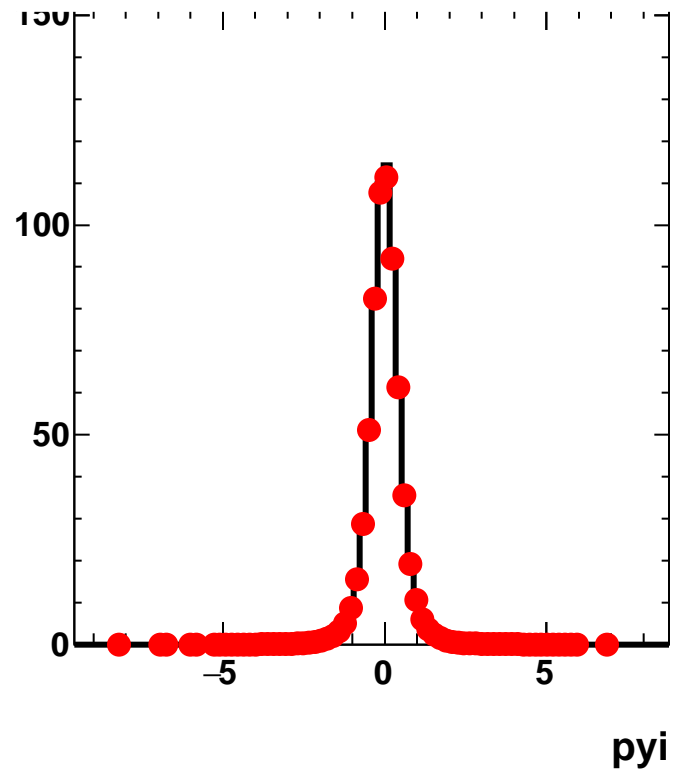
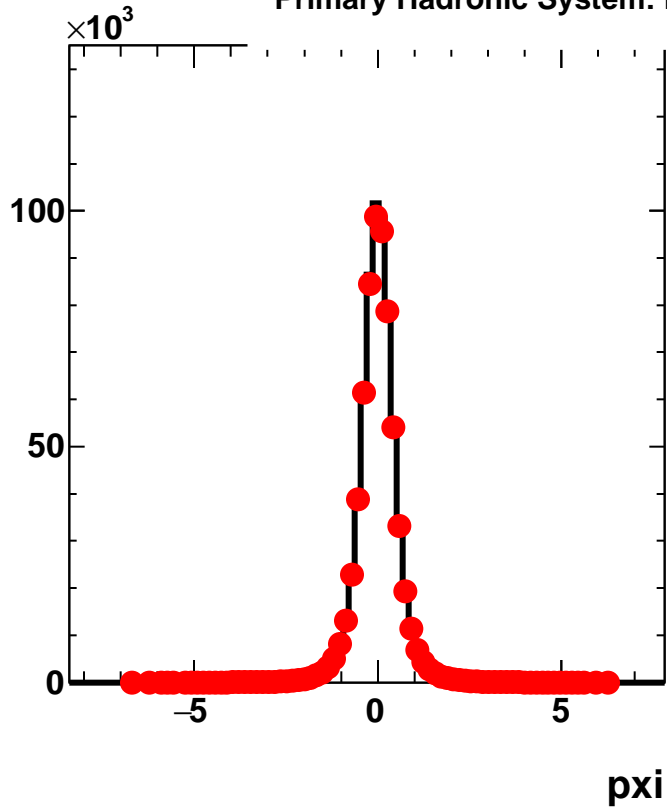
Primary Hadronic System: Number of K0



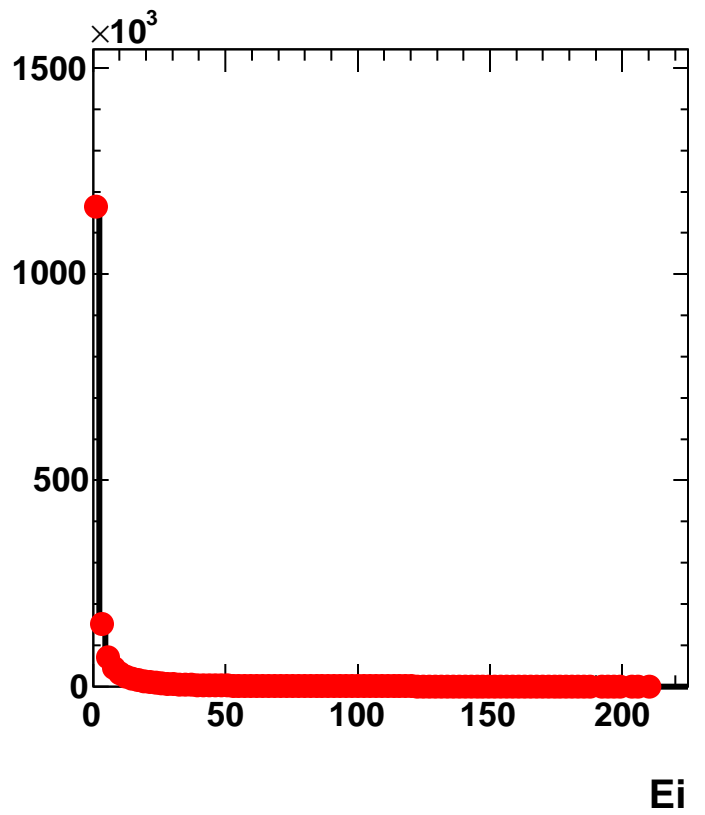
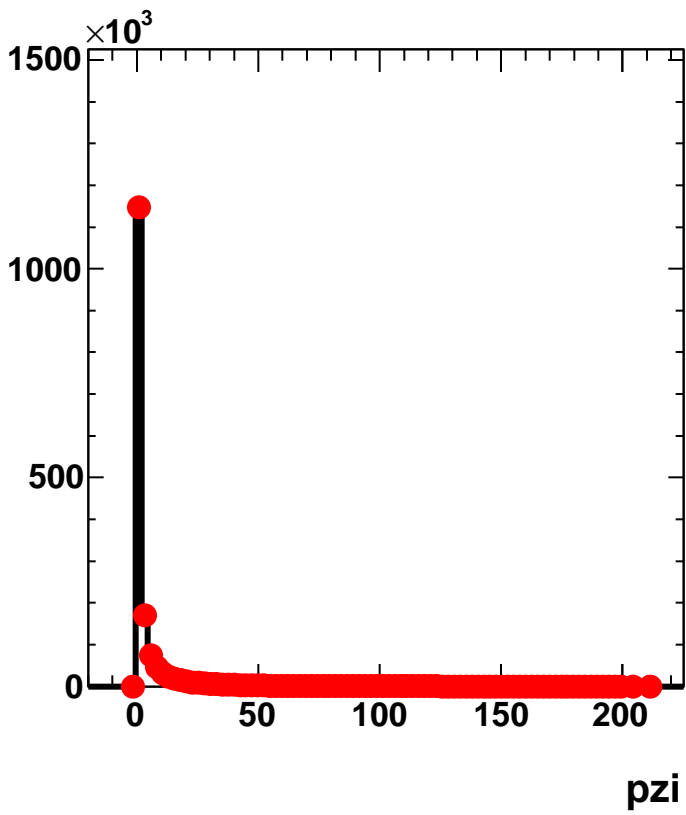
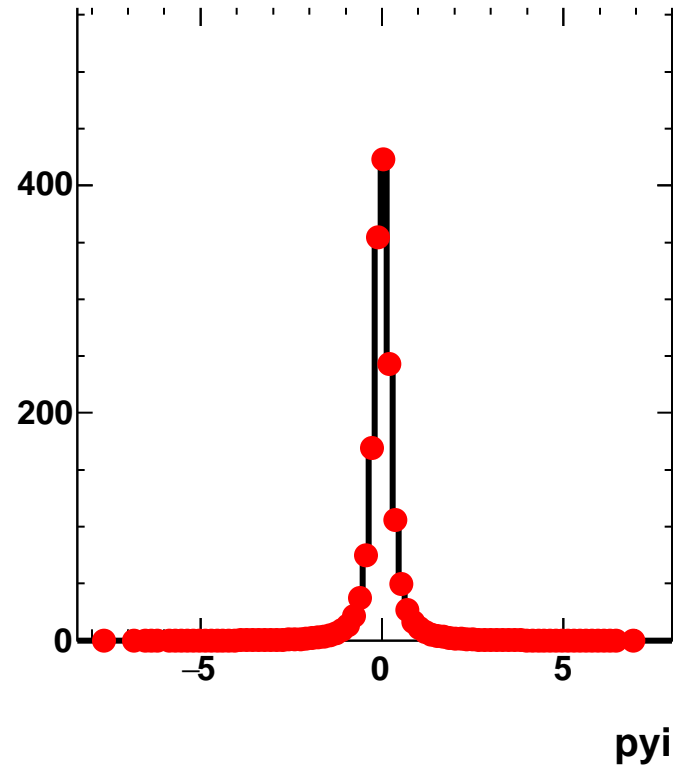
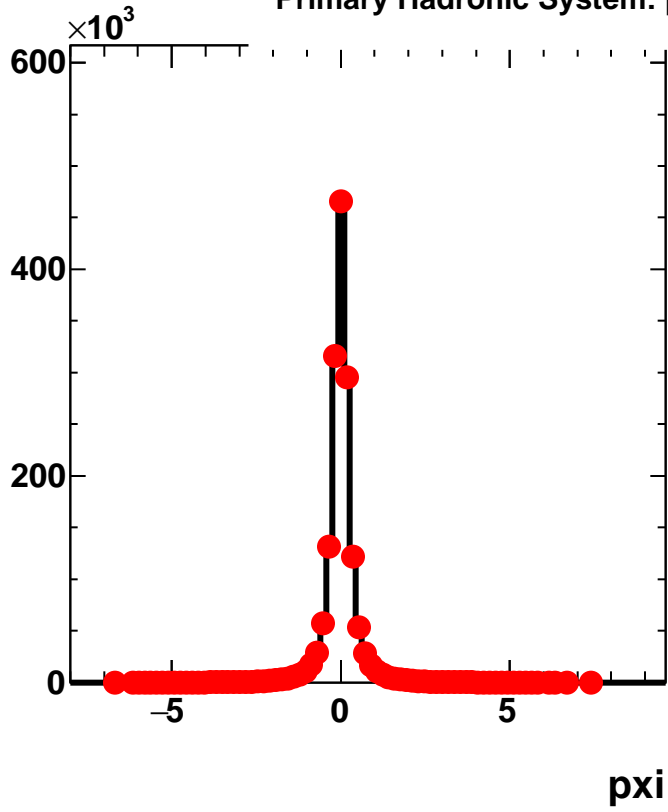
Primary Hadronic System: proton 4-momentum



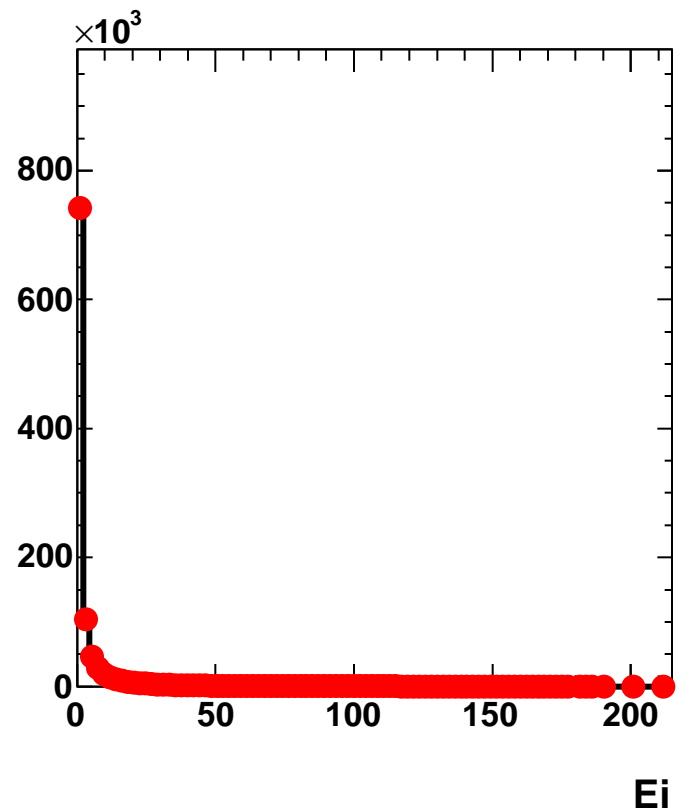
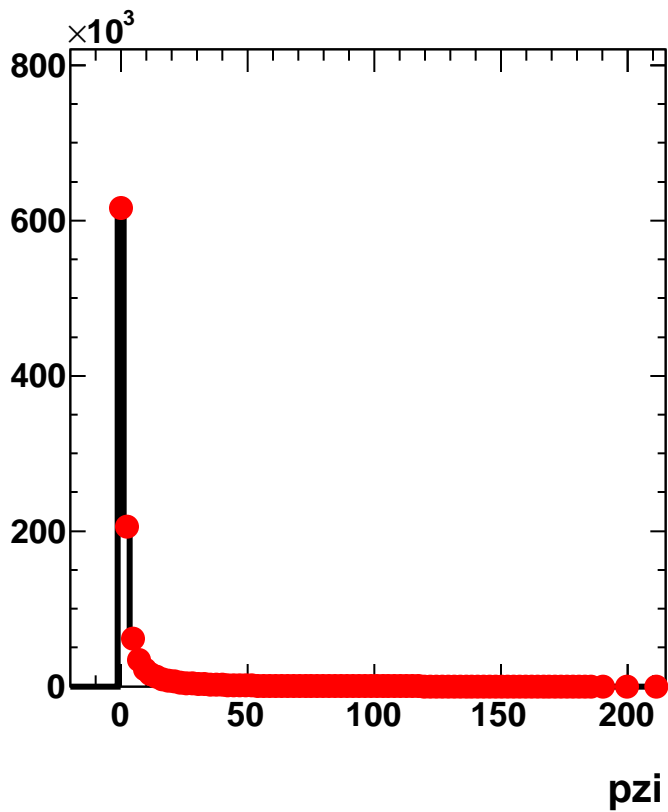
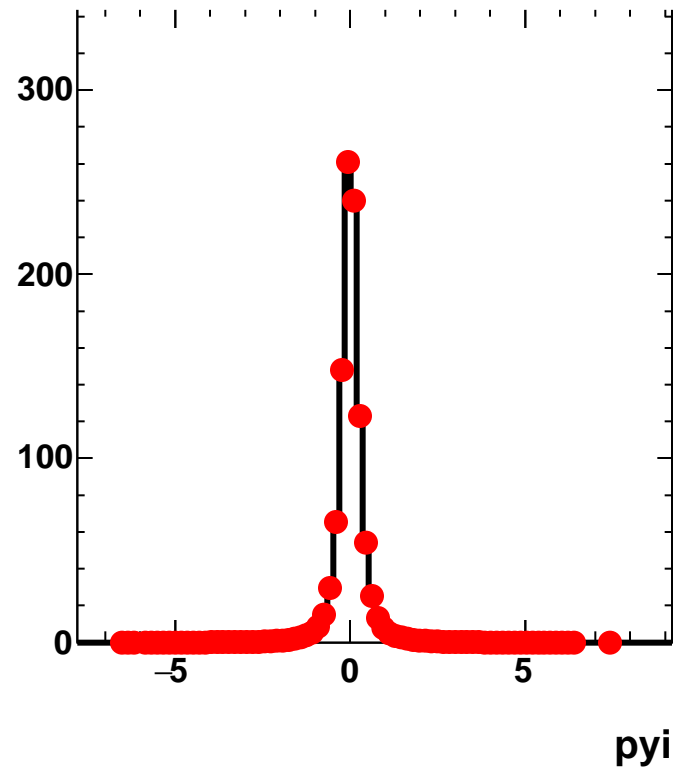
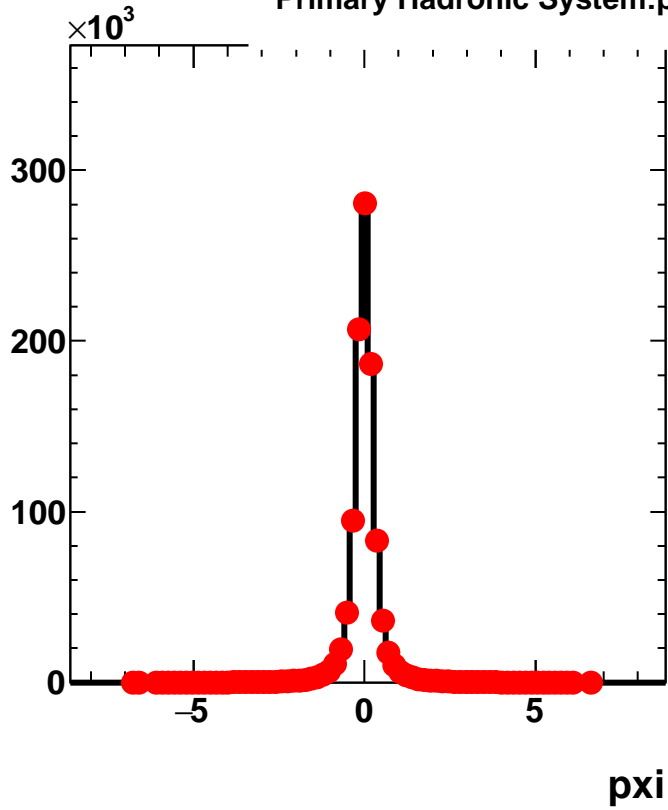
Primary Hadronic System: neutron 4-momentum



Primary Hadronic System: pi0's 4-momentum



Primary Hadronic System: pi+'s 4-momentum



Primary Hadronic System: pi-'s 4-momentum

