

GENIE Event Sample Comparisons

Event Sample:

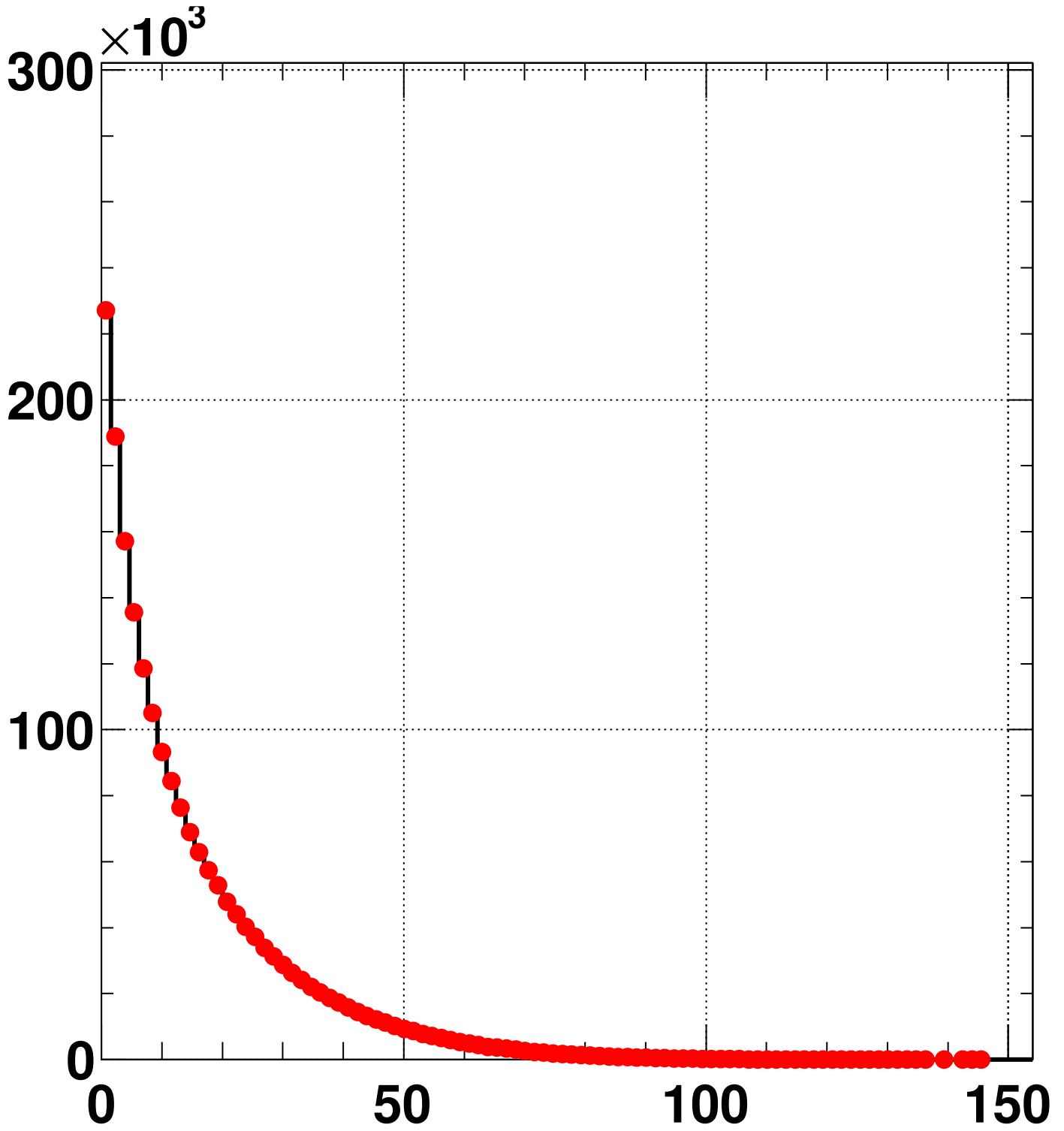
Notes:

Event Numbers:

ALL : 2000000 [test sample], 2000000 [ref sample]
QEL : 5895 [test sample], 5895 [ref sample]
QEL-CC : 796 [test sample], 796 [ref sample]
QEL-NC : 5099 [test sample], 5099 [ref sample]
RES : 54767 [test sample], 54767 [ref sample]
RES-CC : 39328 [test sample], 39328 [ref sample]
RES-NC : 15439 [test sample], 15439 [ref sample]
DIS : 1922724 [test sample], 1922724 [ref sample]
DIS-CC : 1340014 [test sample], 1340014 [ref sample]
DIS-NC : 582710 [test sample], 582710 [ref sample]
COH : 0 [test sample], 0 [ref sample]
COH-CC : 0 [test sample], 0 [ref sample]
COH-NC : 0 [test sample], 0 [ref sample]
IMD : 3952 [test sample], 3952 [ref sample]
NuE-EL : 442 [test sample], 442 [ref sample]
DIS-CHARM: 100052 [test sample], 100052 [ref sample]
QEL-CHARM: 796 [test sample], 796 [ref sample]

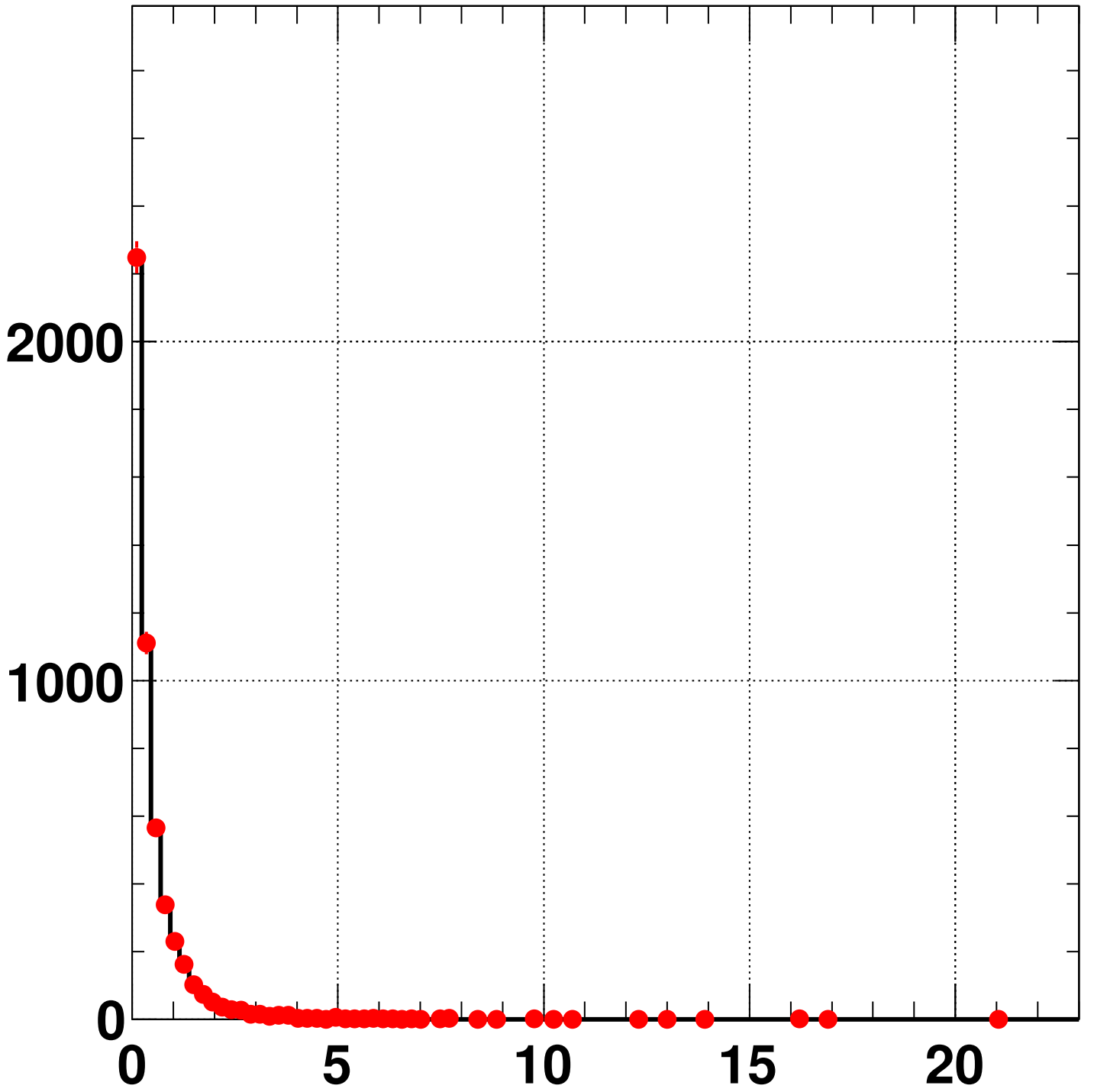
Selected Kinematical Quantities

selected Q2 for all events



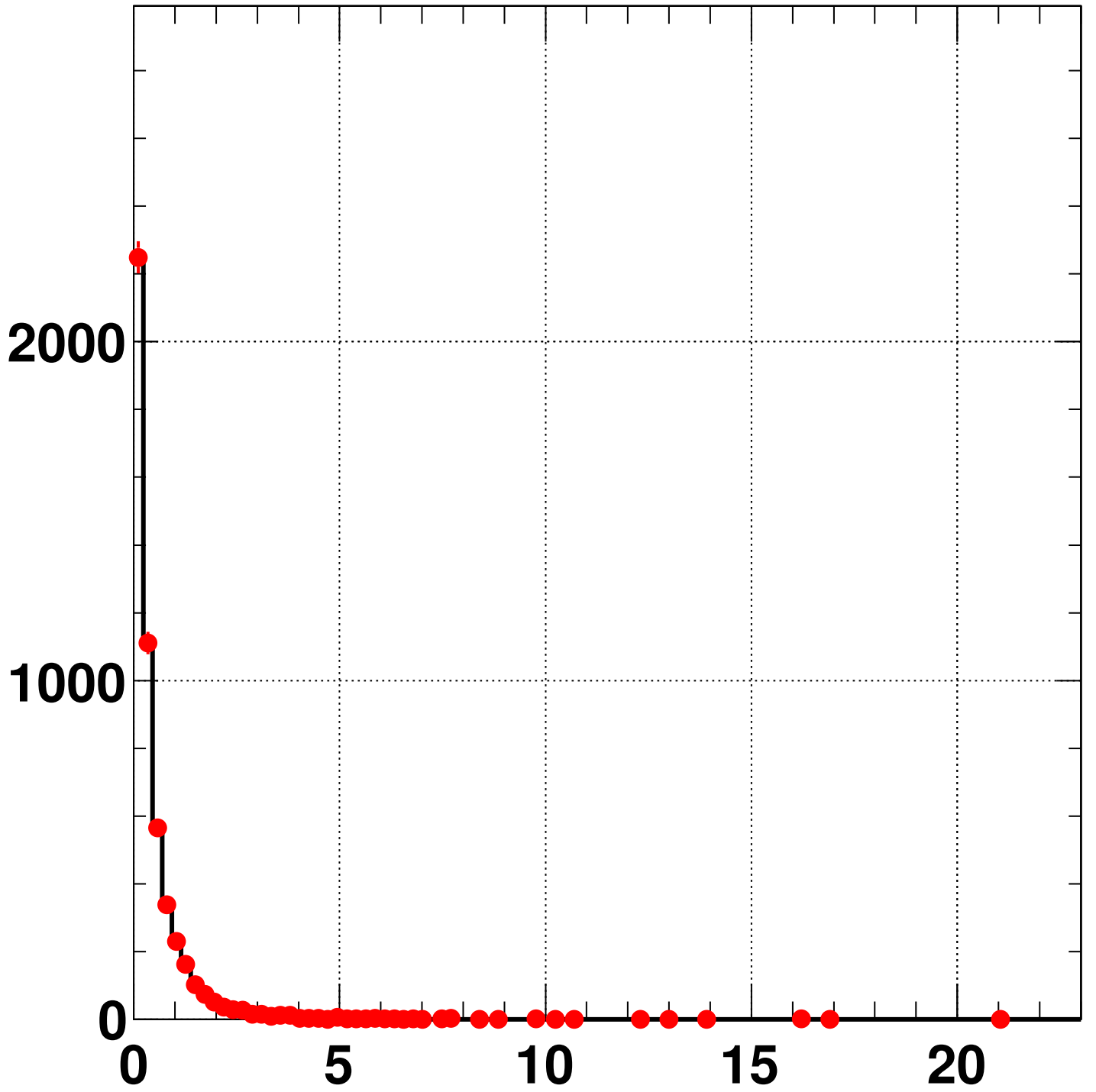
Q2s

selected Q2 for QEL events



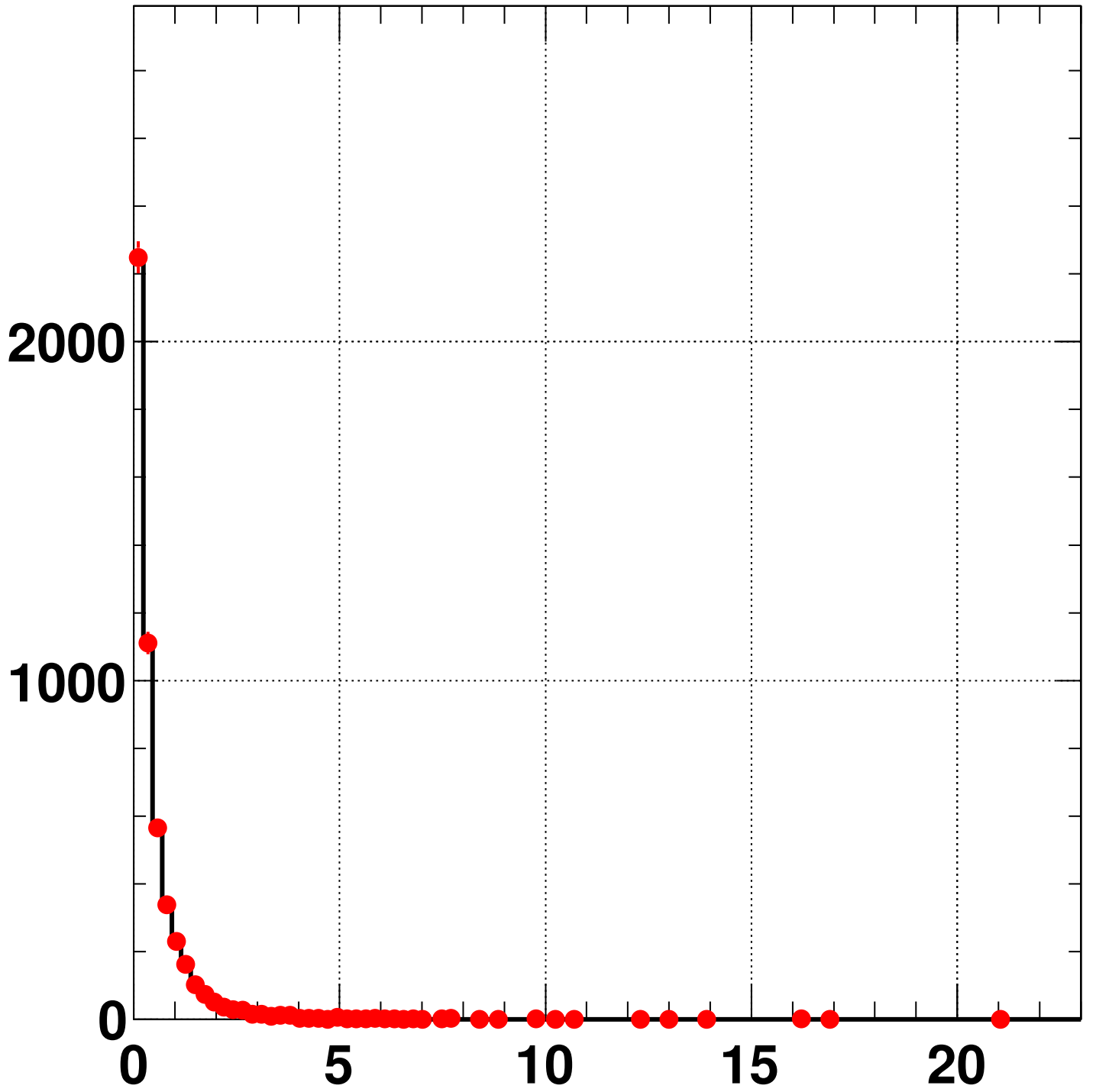
Q2s

selected Q2 for QEL CC events



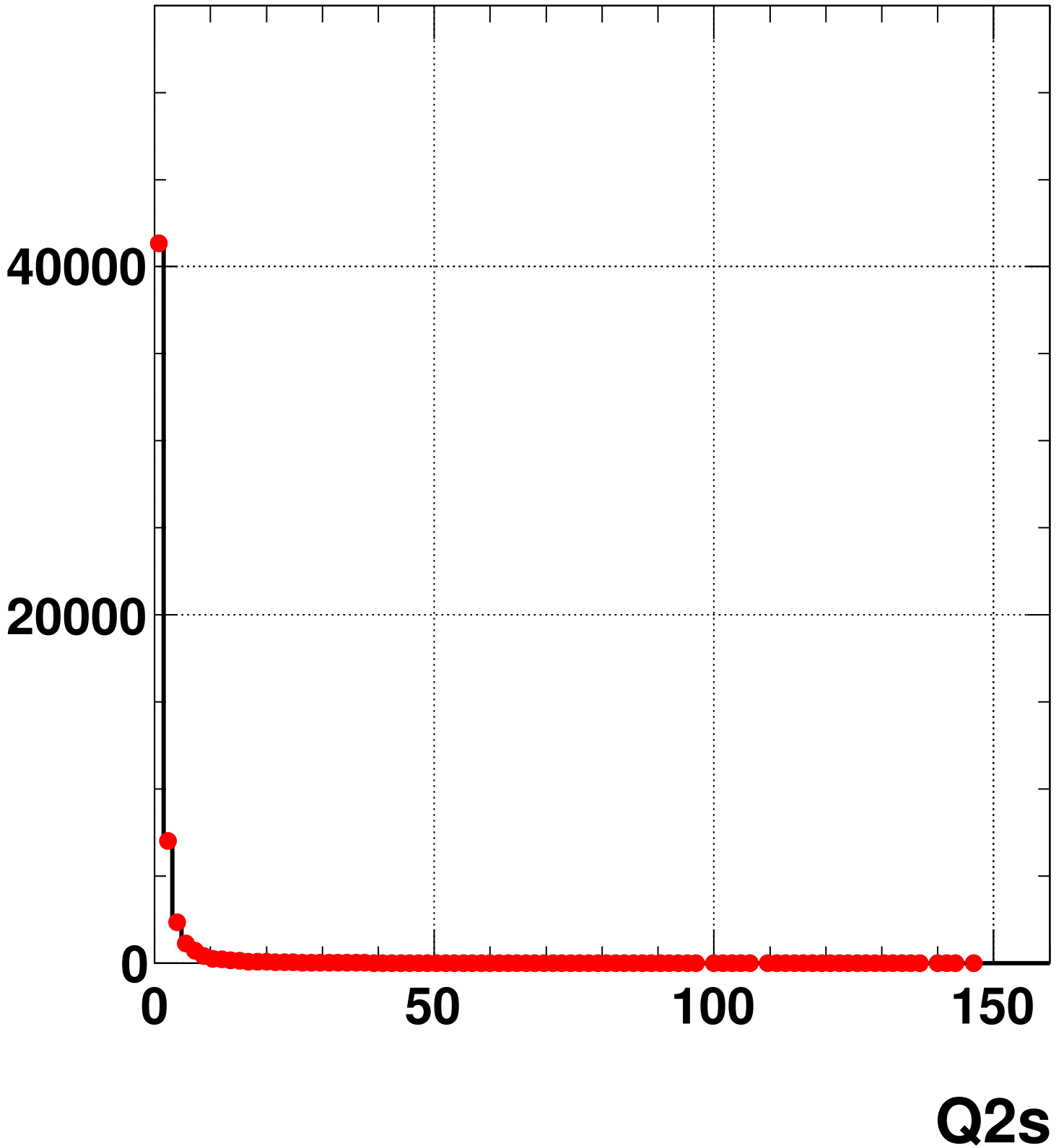
Q2s

selected Q2 for QEL NC events

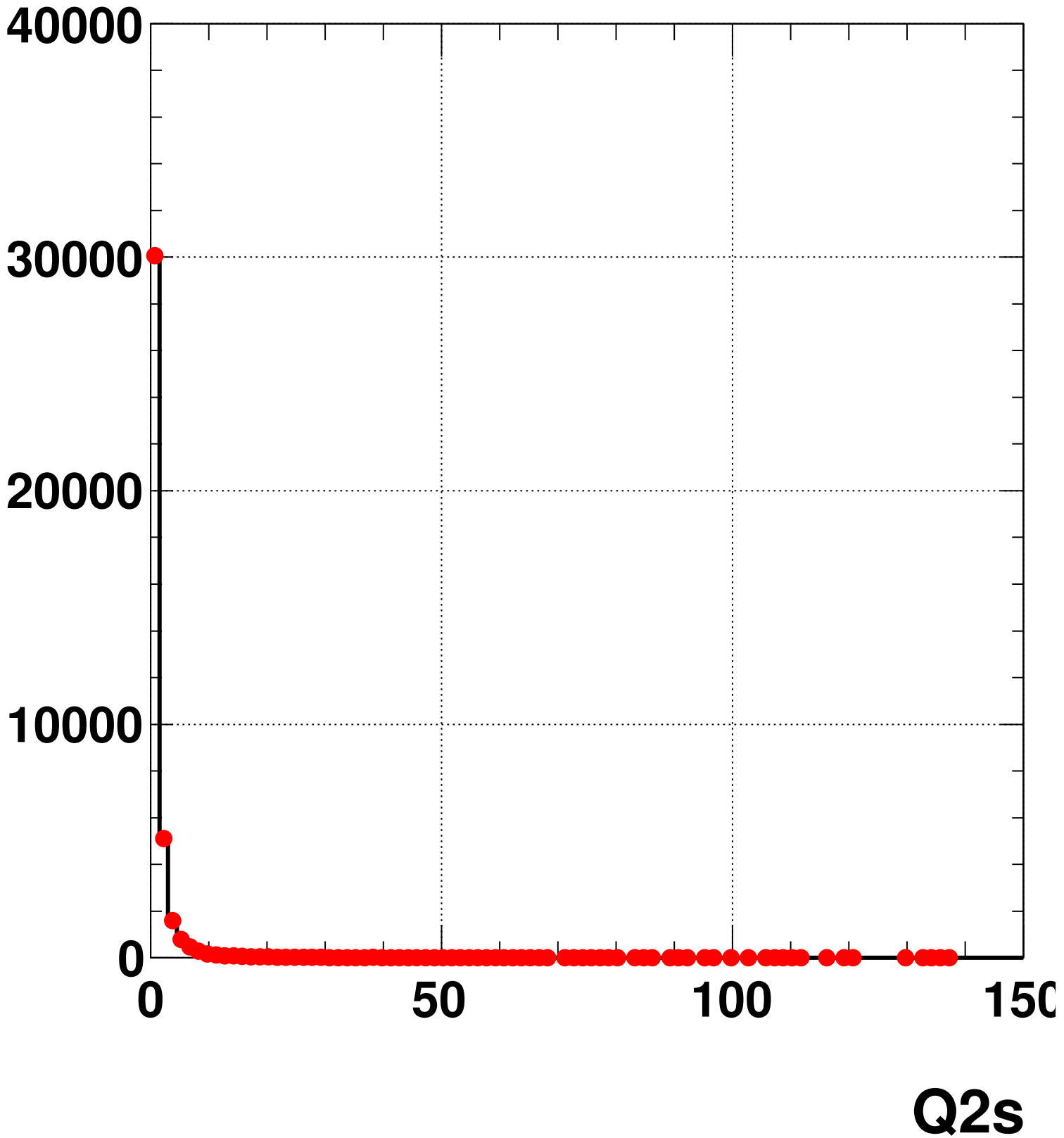


Q2s

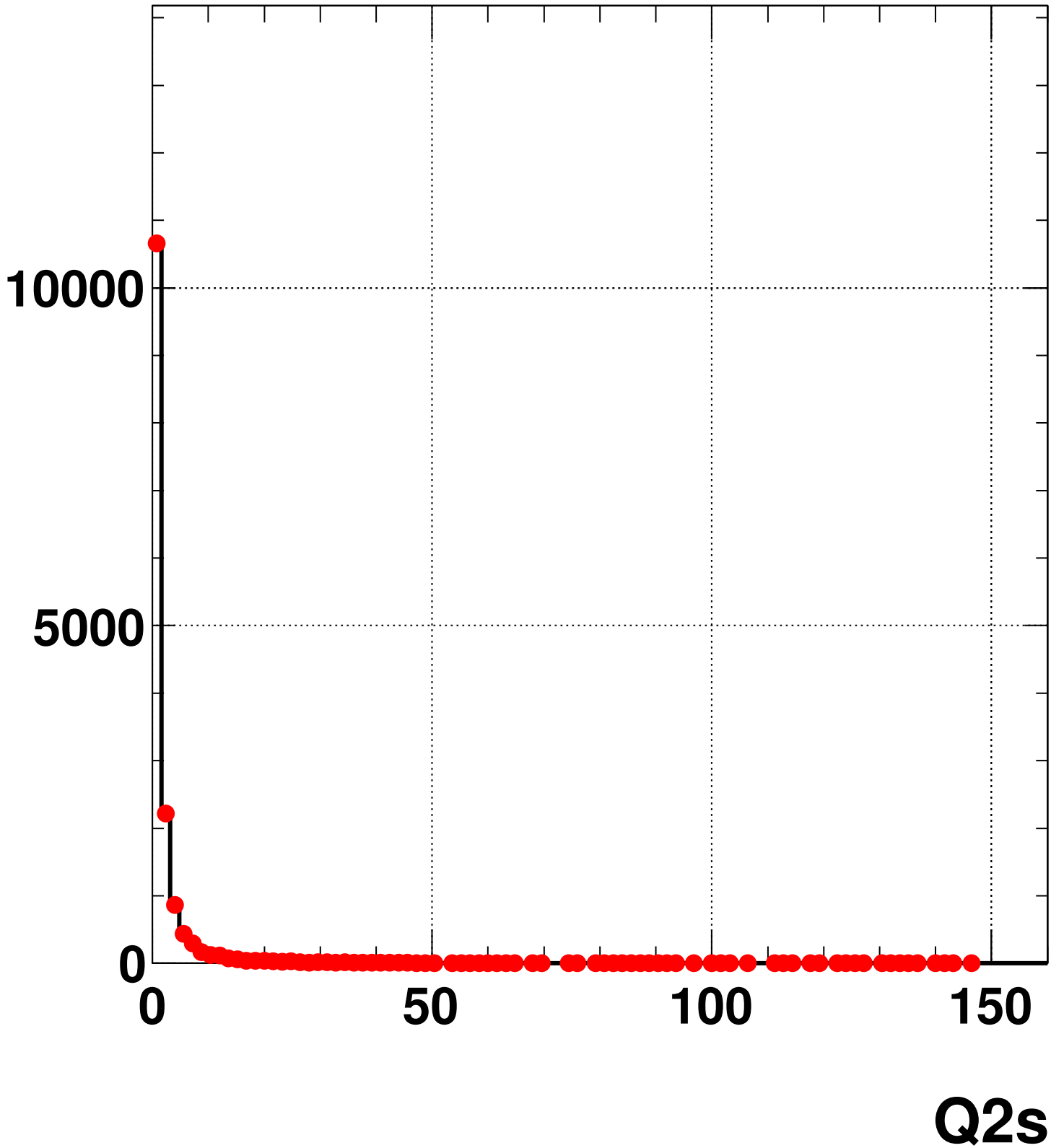
selected Q2 for RES events



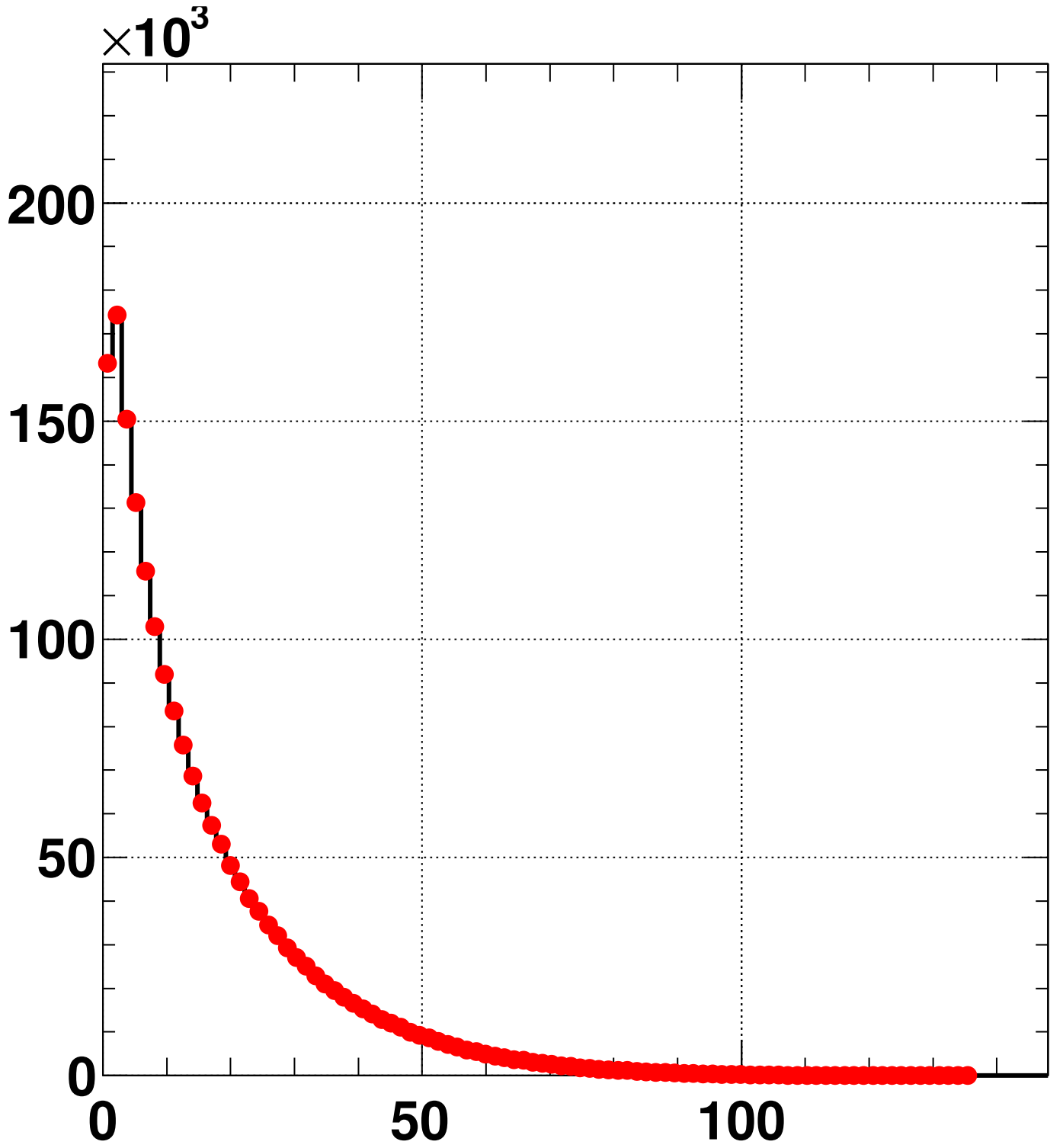
selected Q2 for RES CC events



selected Q2 for RES NC events

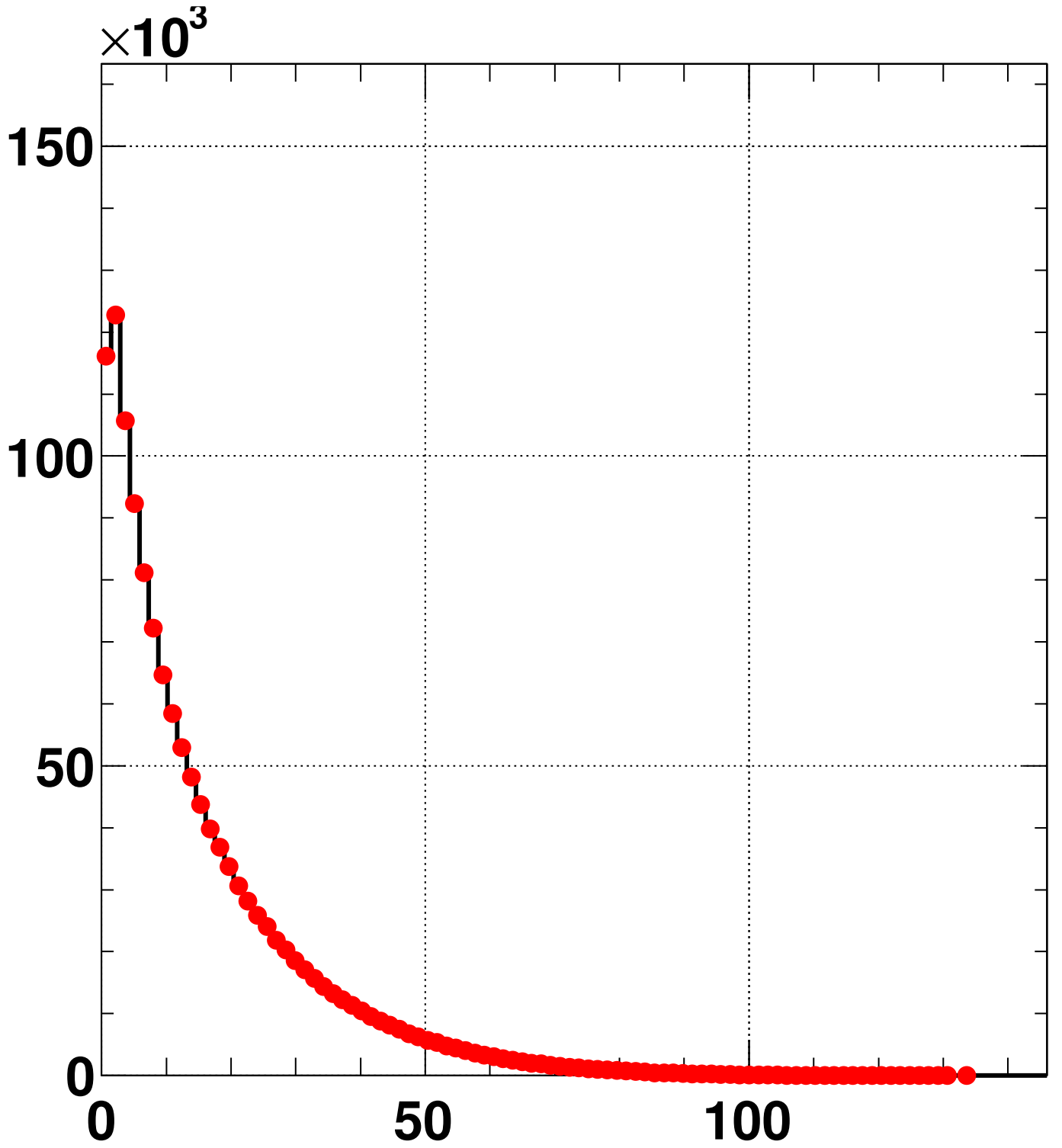


selected Q2 for DIS events



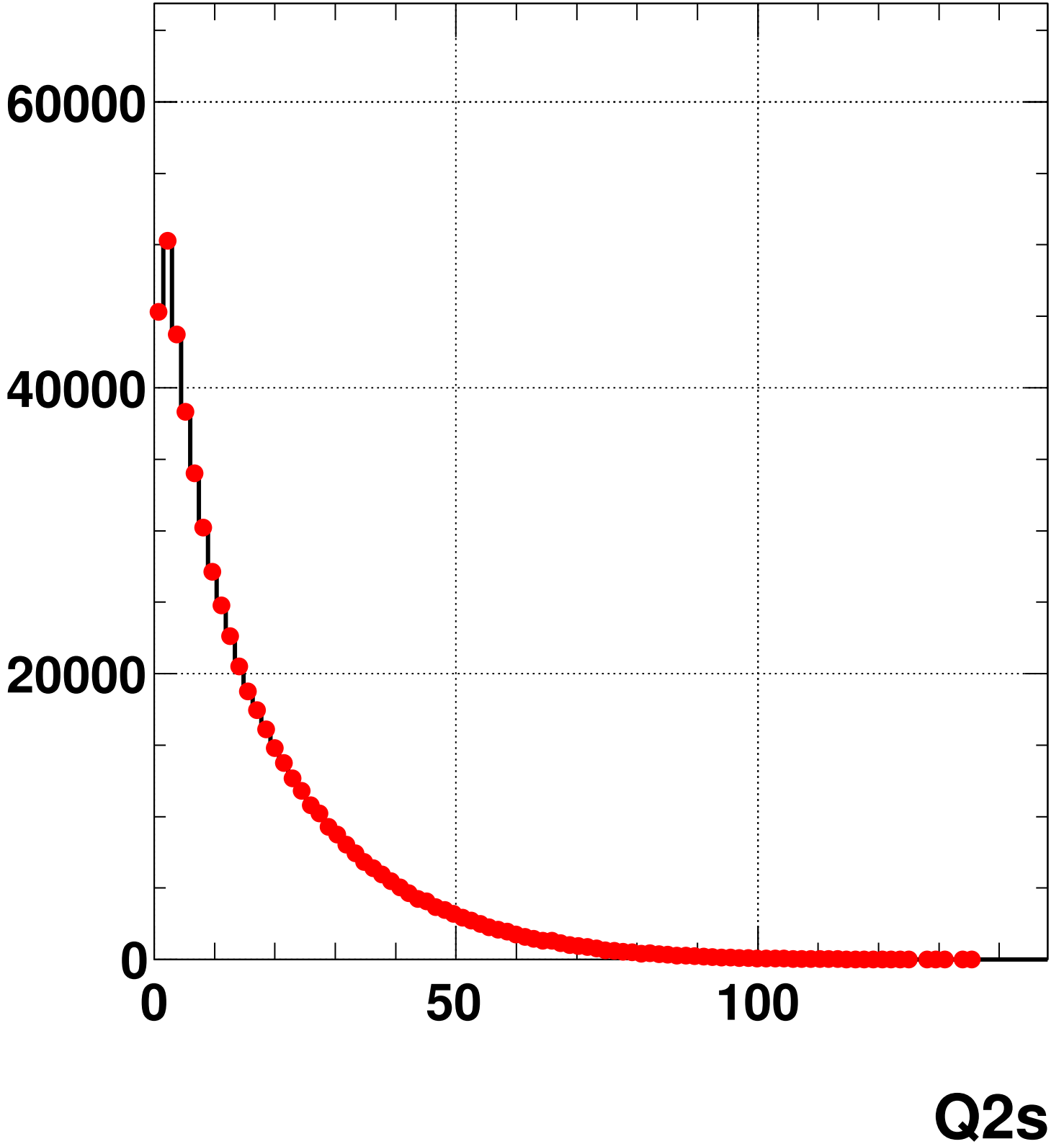
Q2s

selected Q2 for DIS CC events

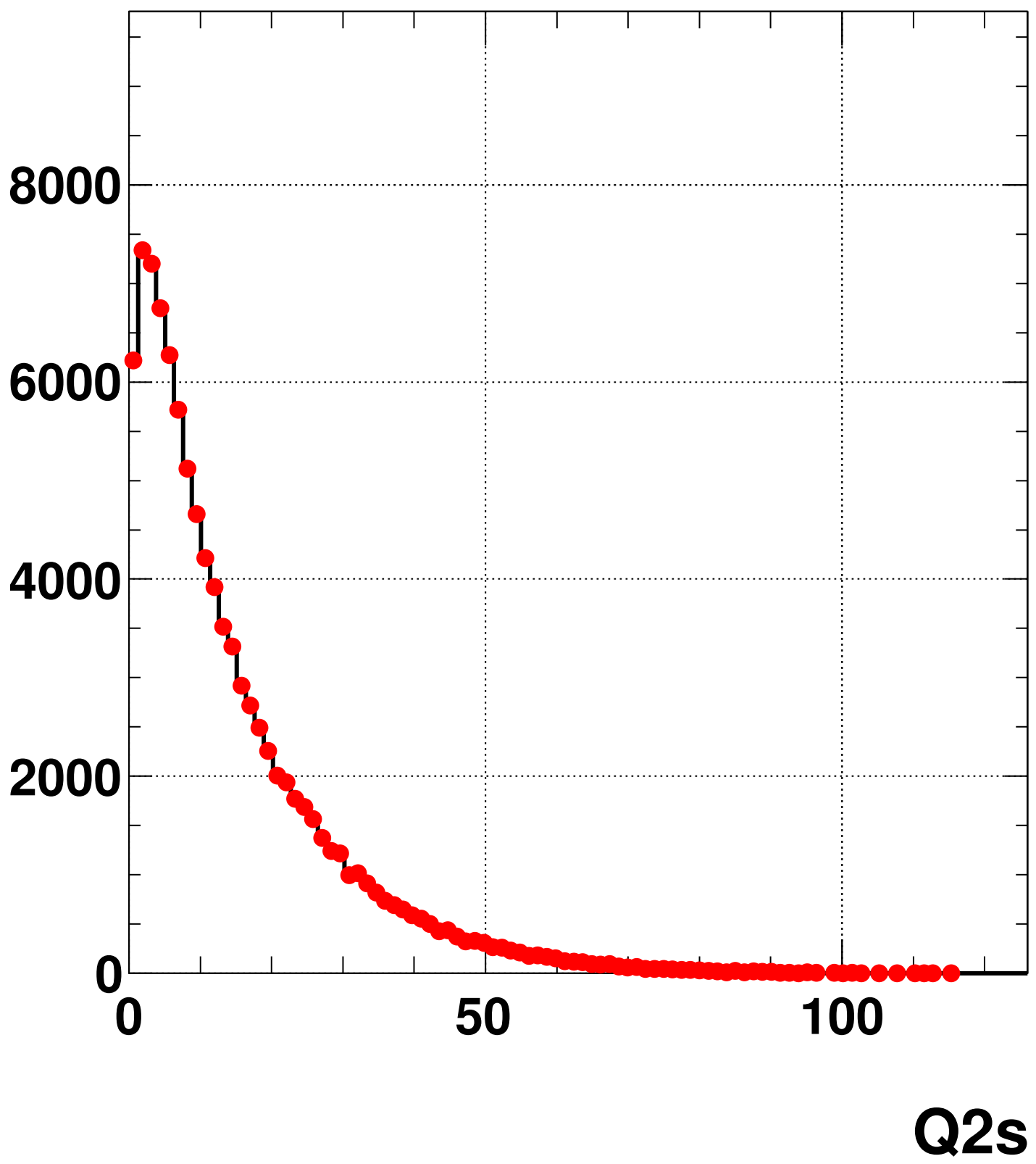


Q2s

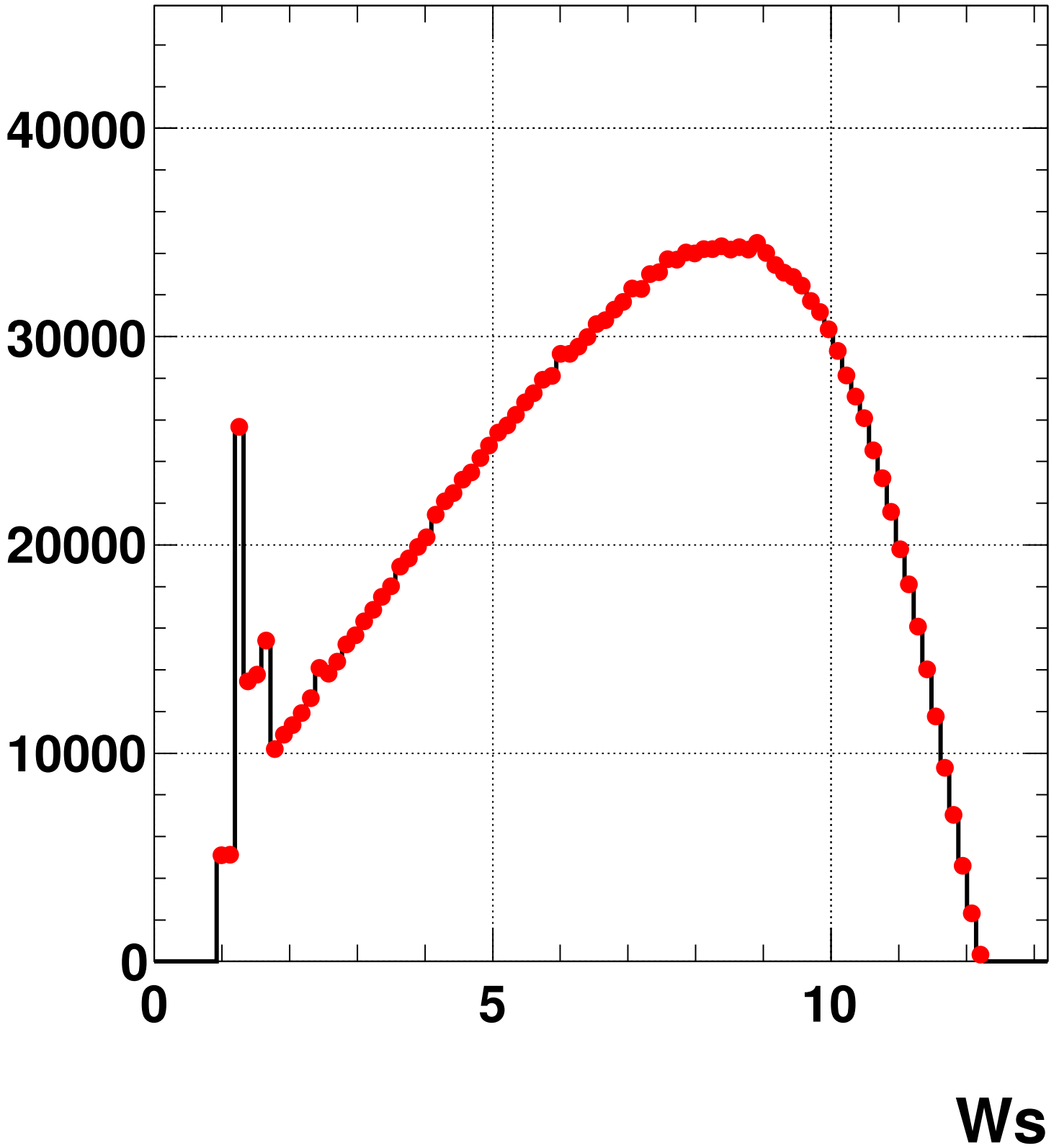
selected Q2 for DIS NC events



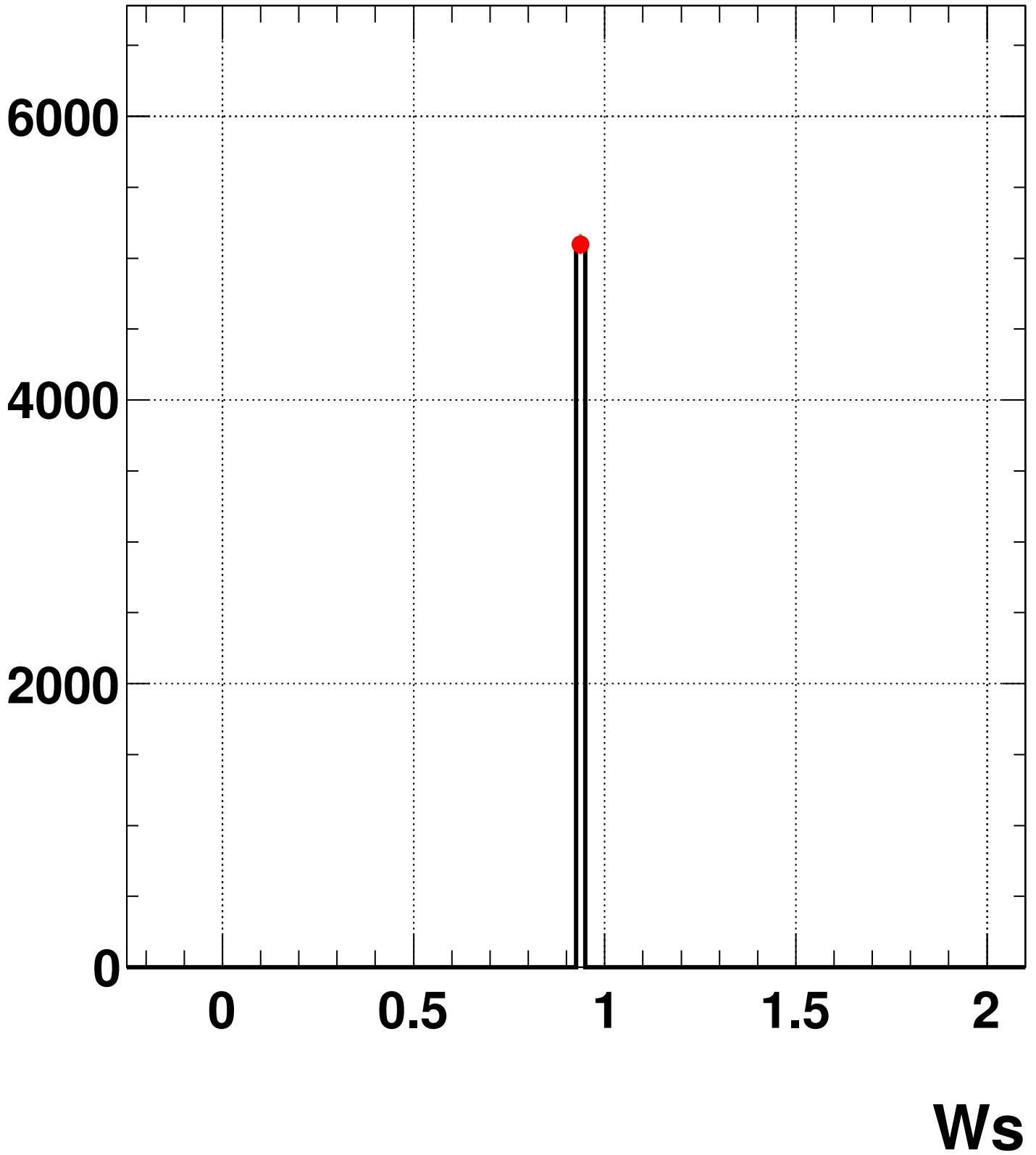
selected Q2 for Charm/DIS events



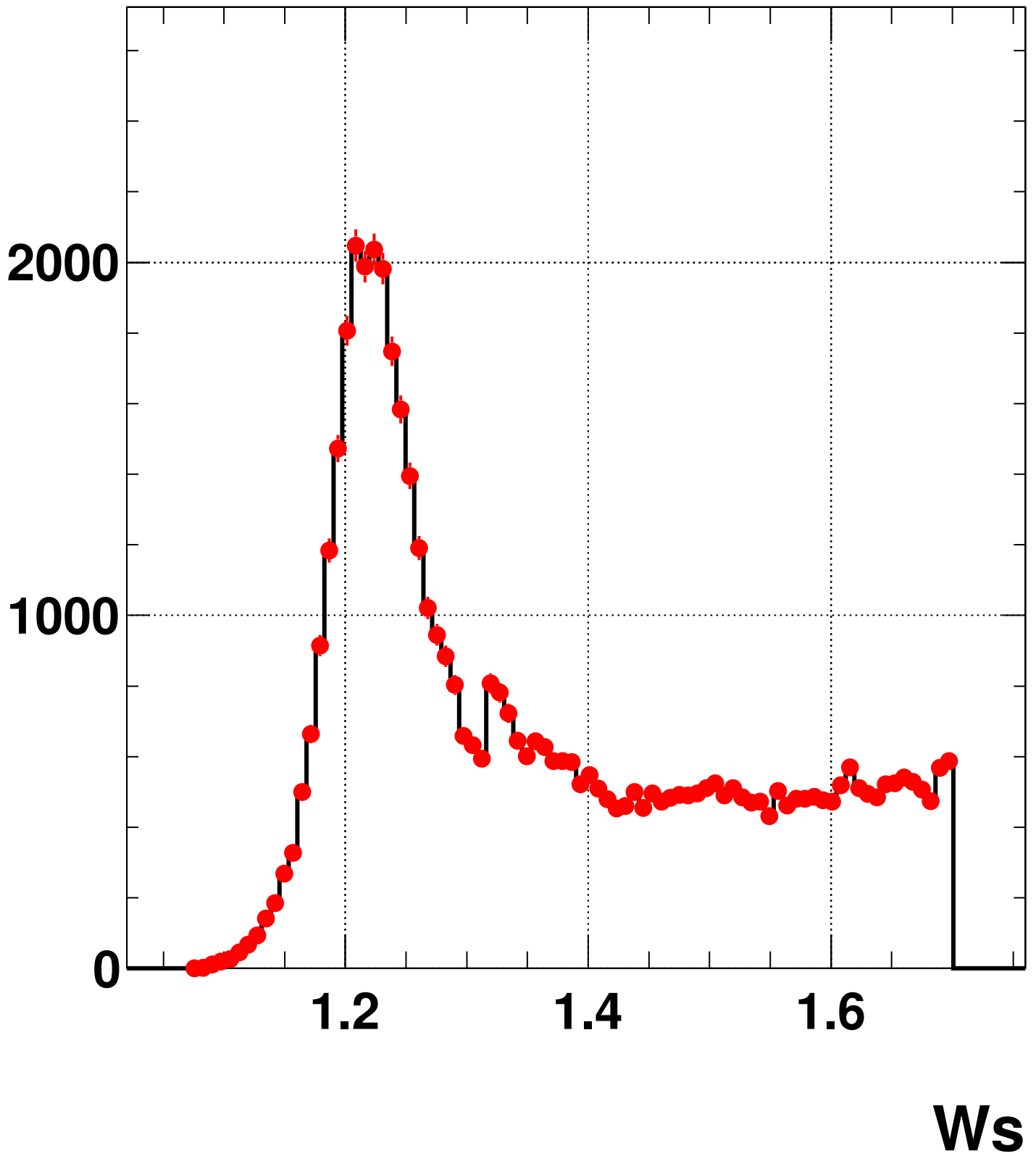
selected W for all events



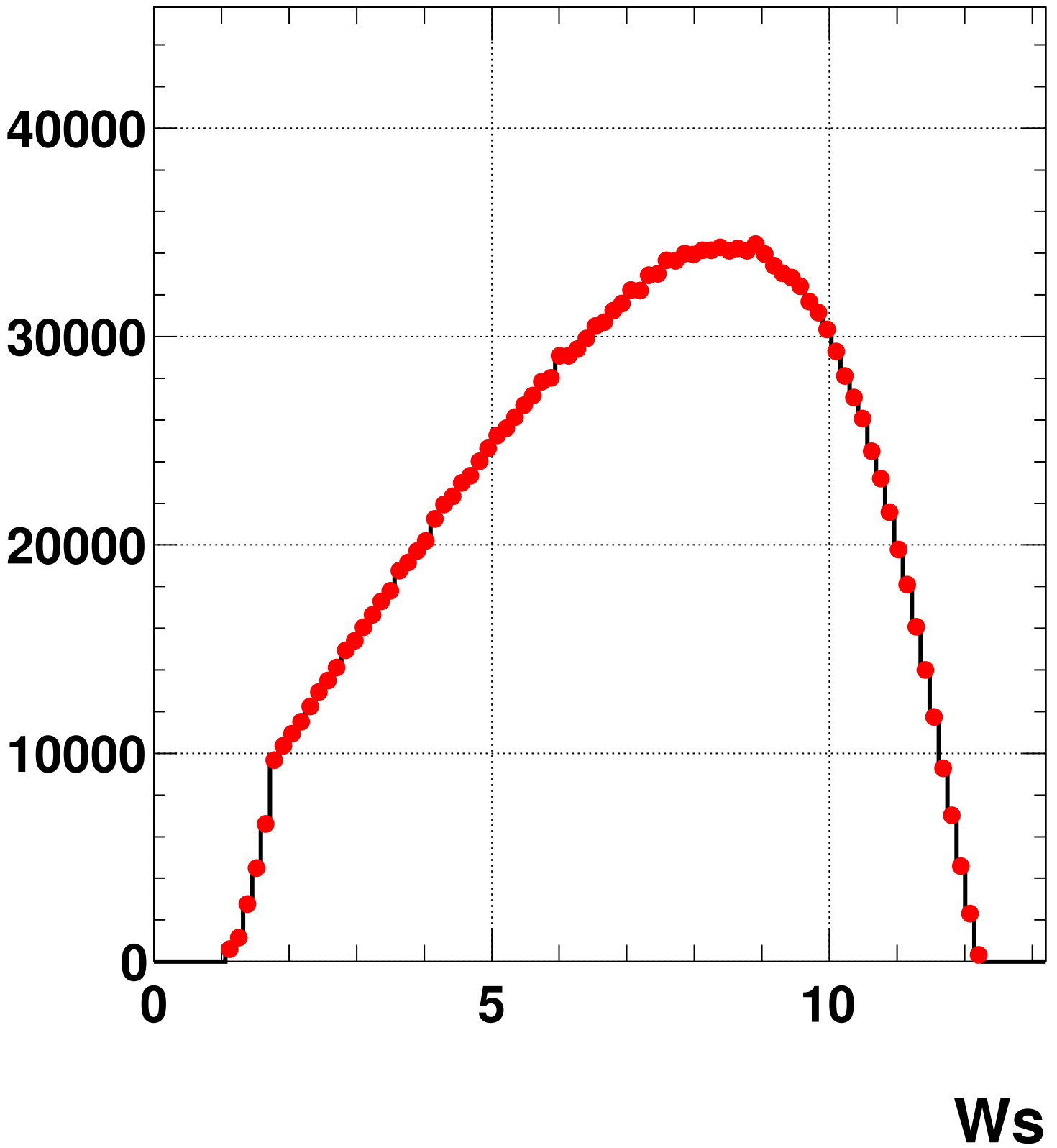
selected W for QEL events



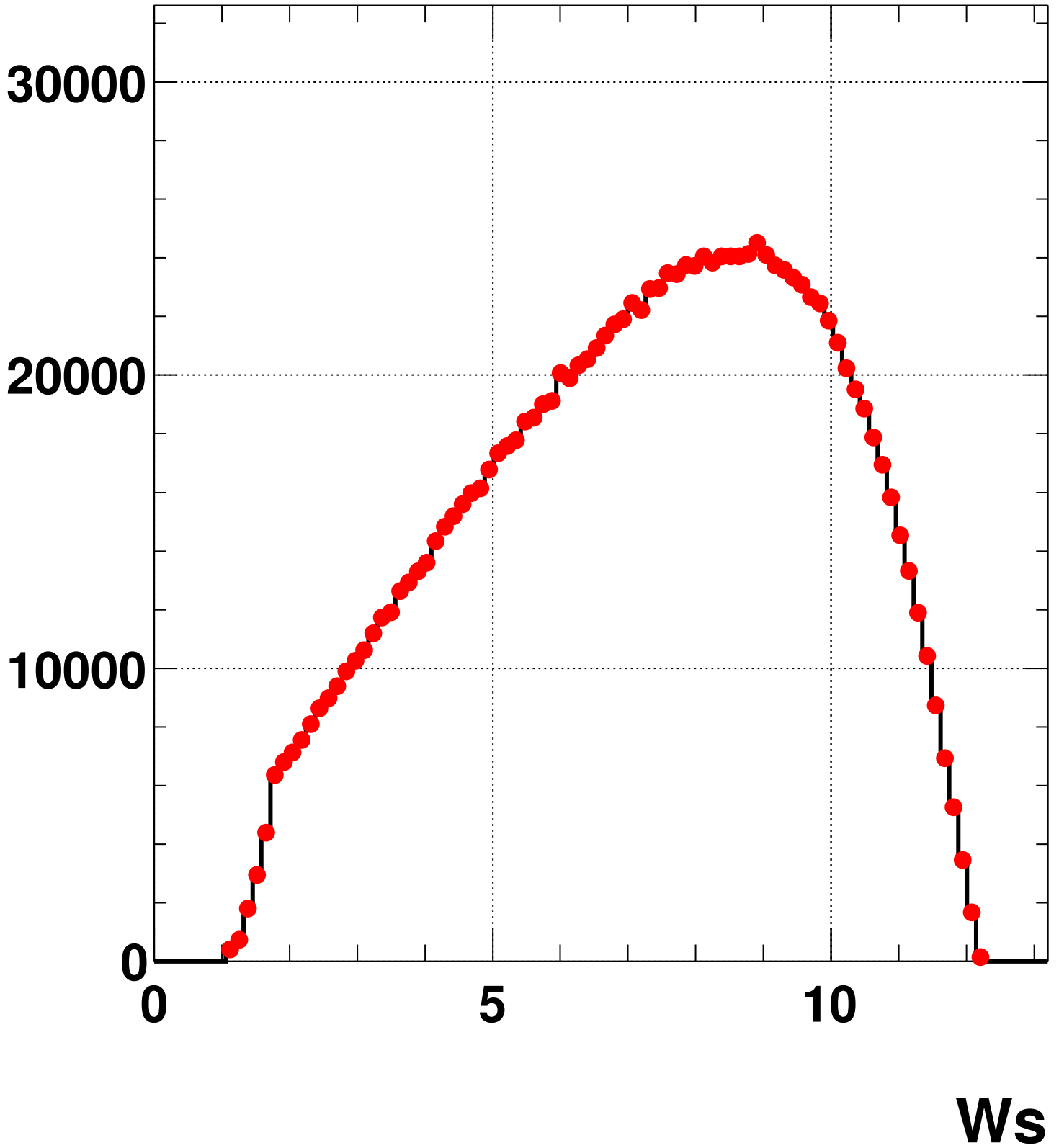
selected W for RES events



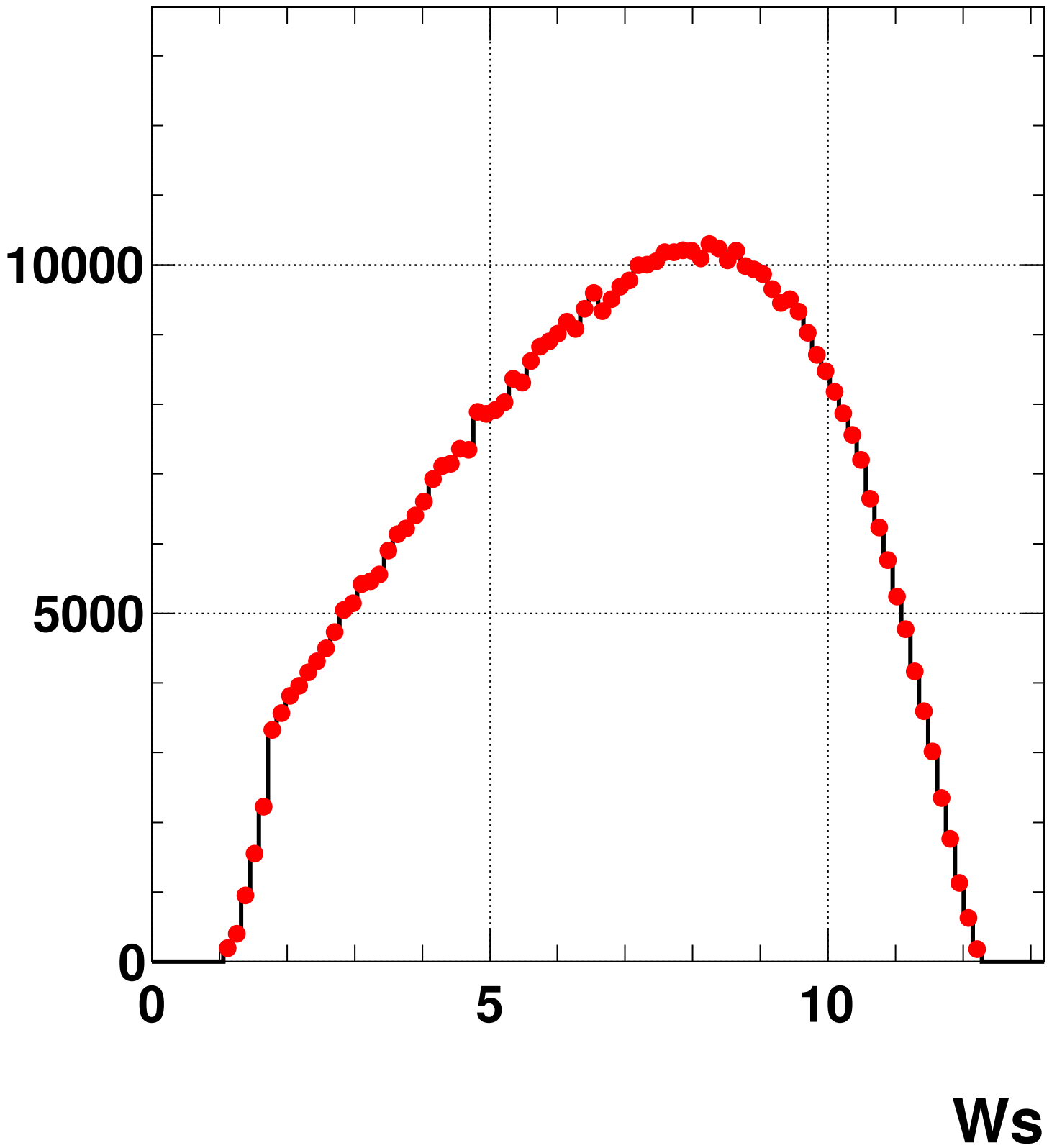
selected W for DIS events



selected W for DIS CC events

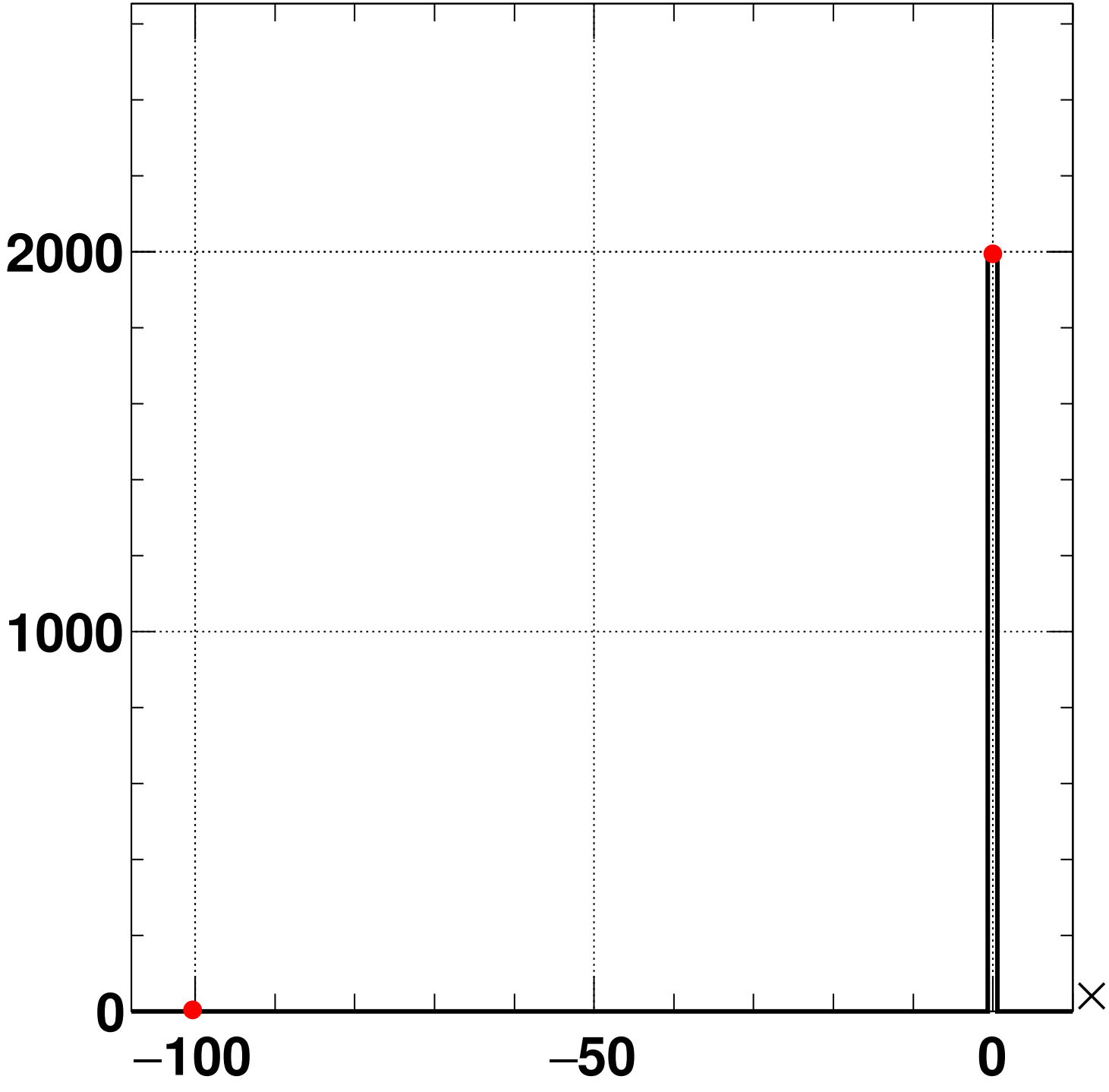


selected W for DIS NC events



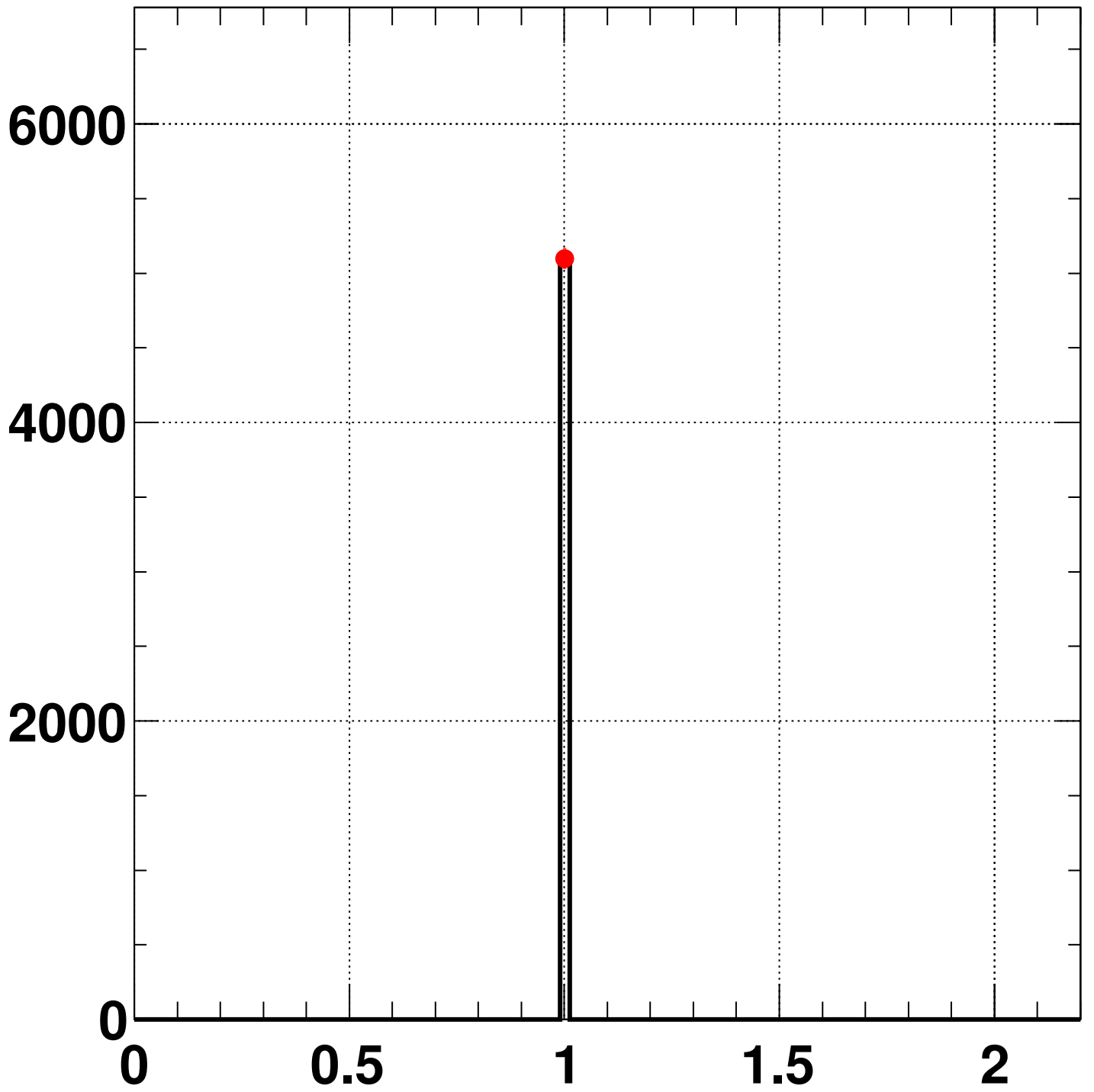
selected x for all events

$\times 10^3$



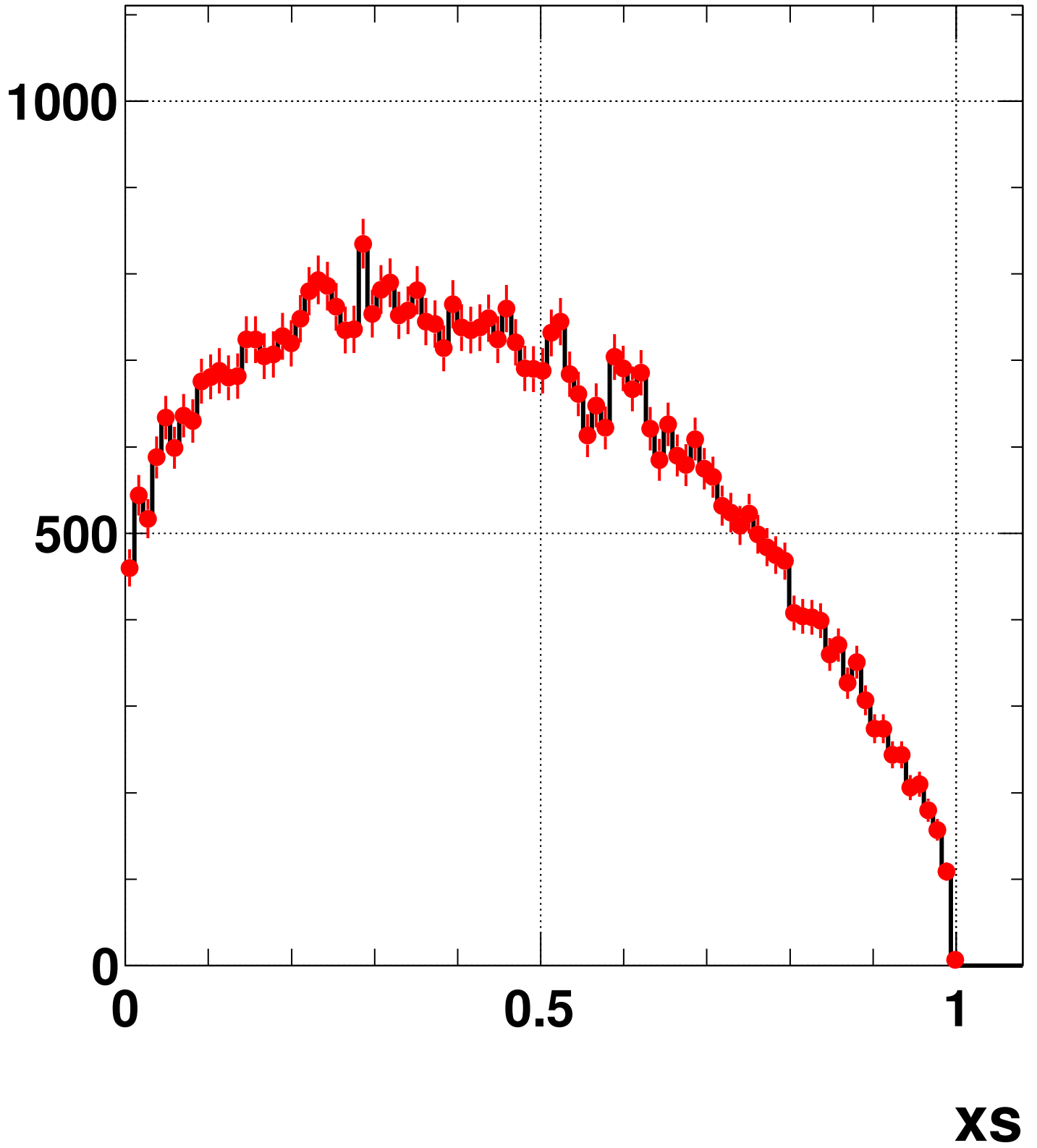
XS

selected x for QEL events

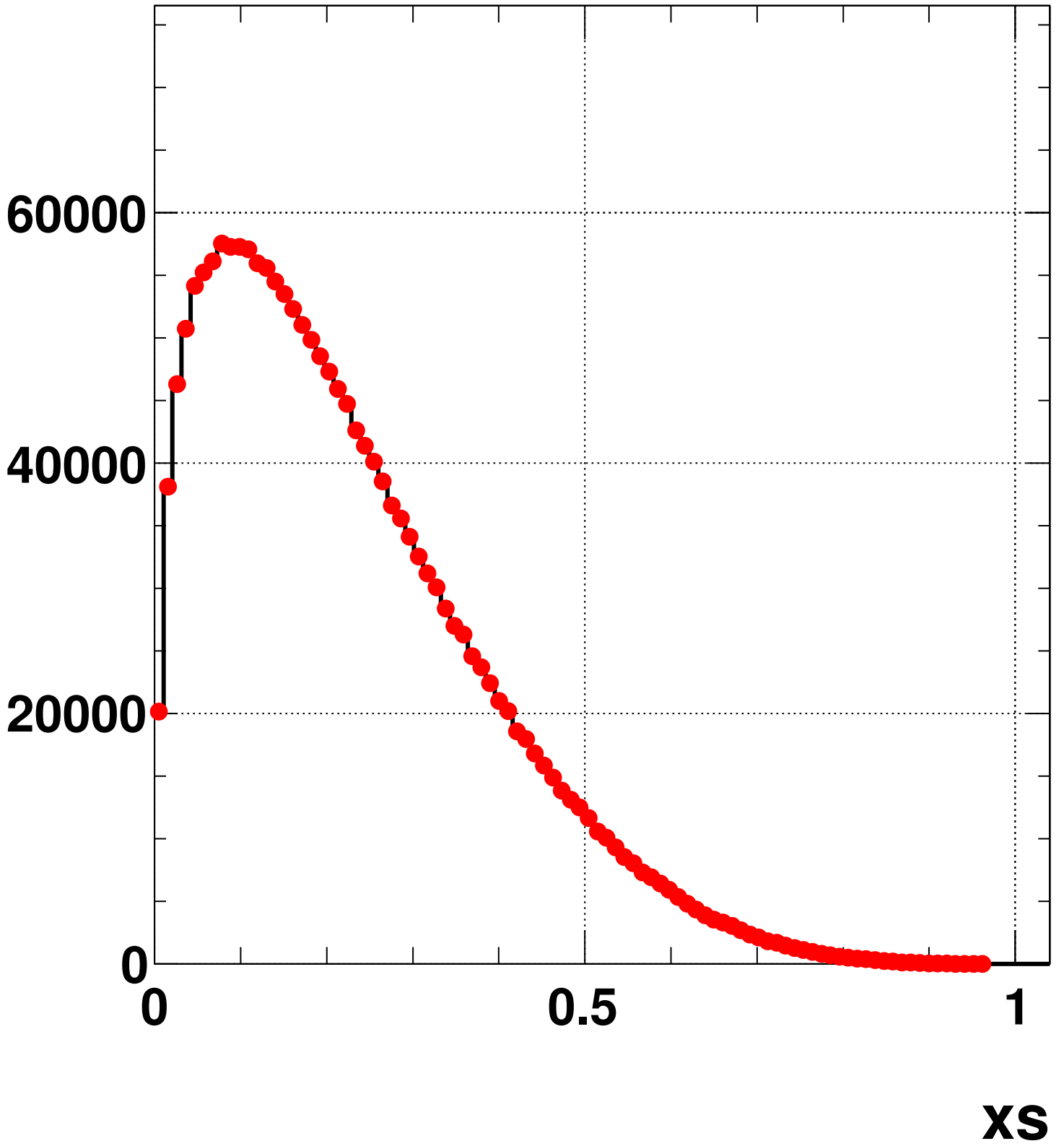


XS

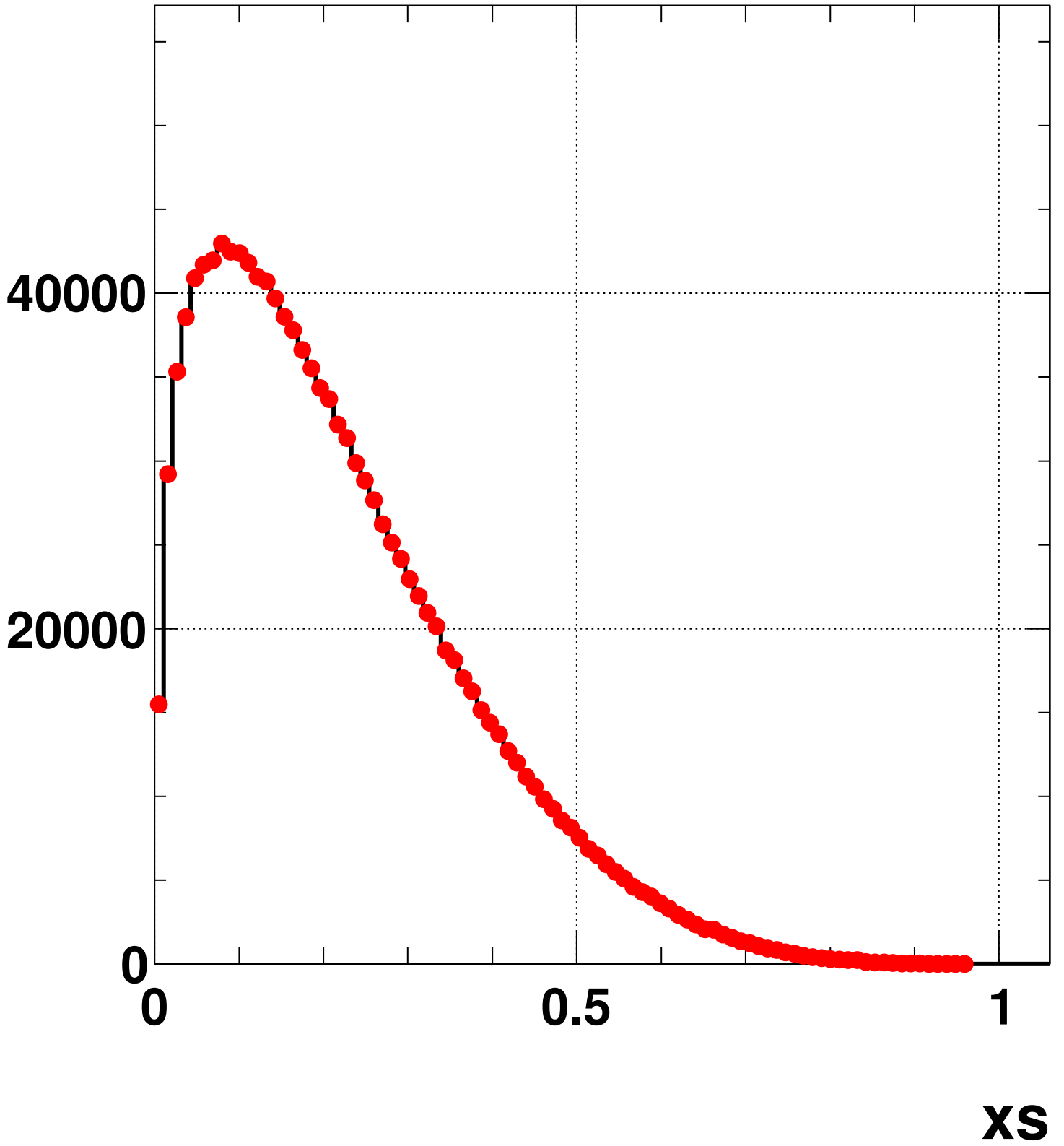
selected x for RES events



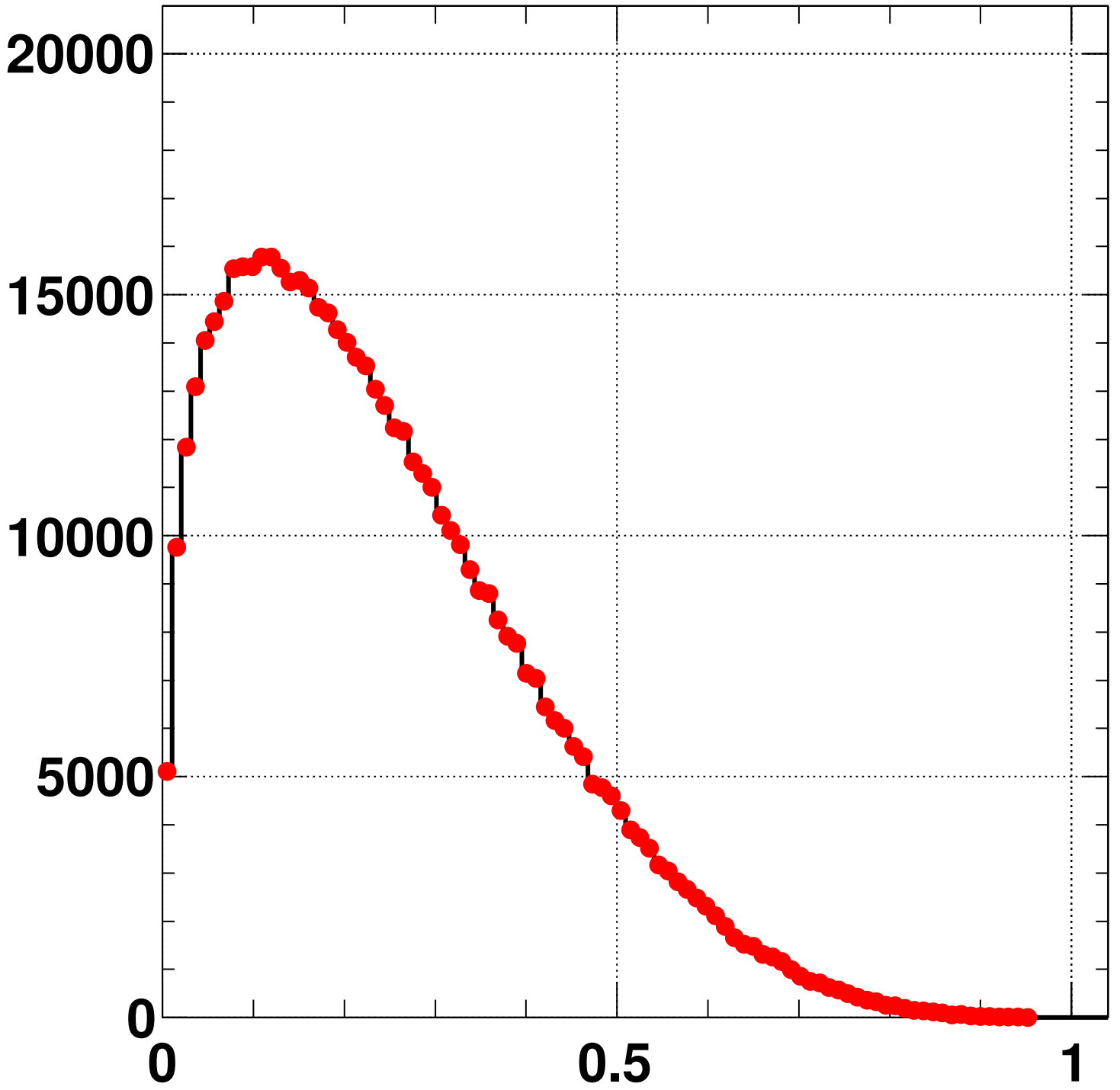
selected x for DIS events



selected x for DIS CC events

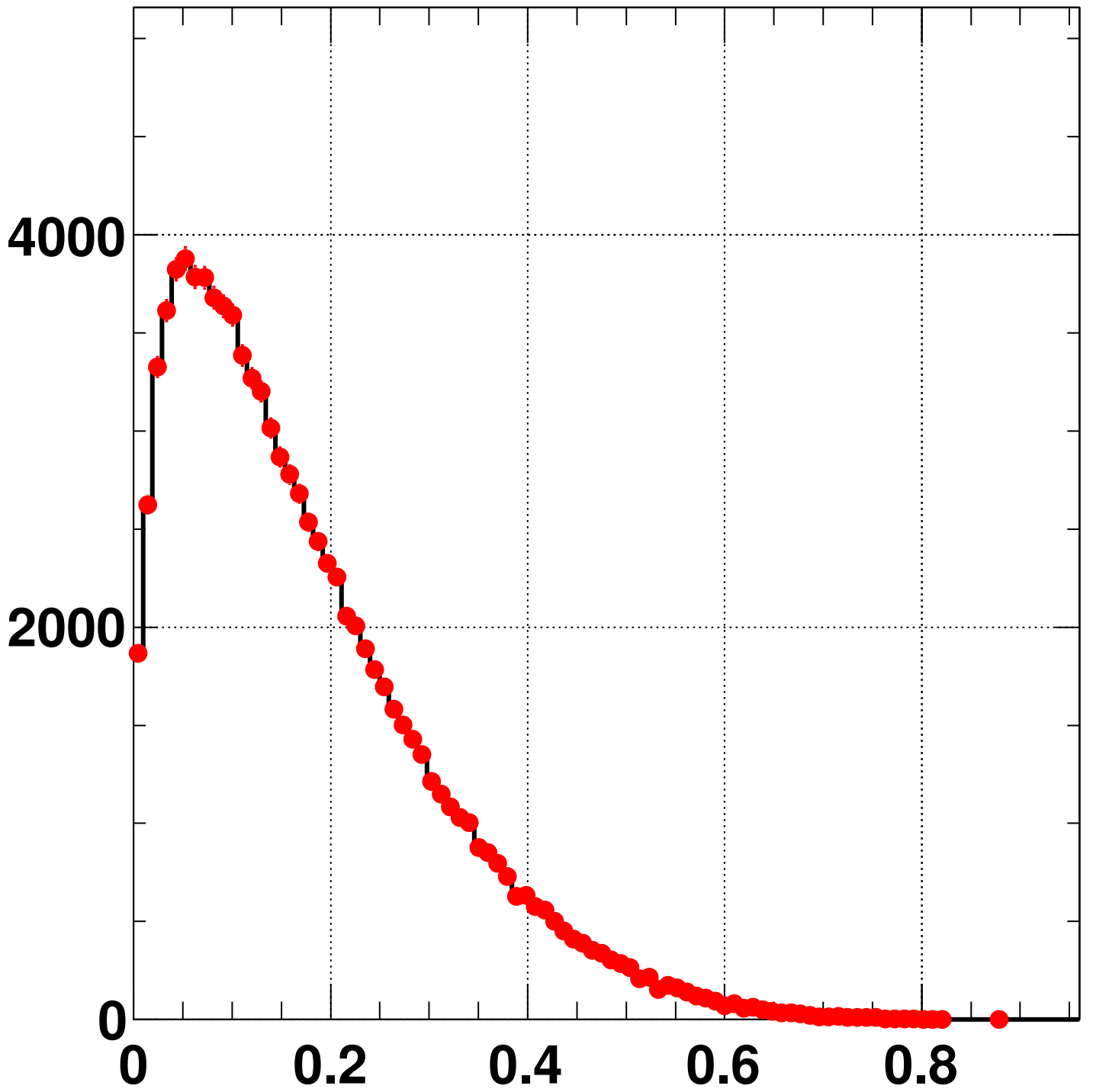


selected x for DIS NC events



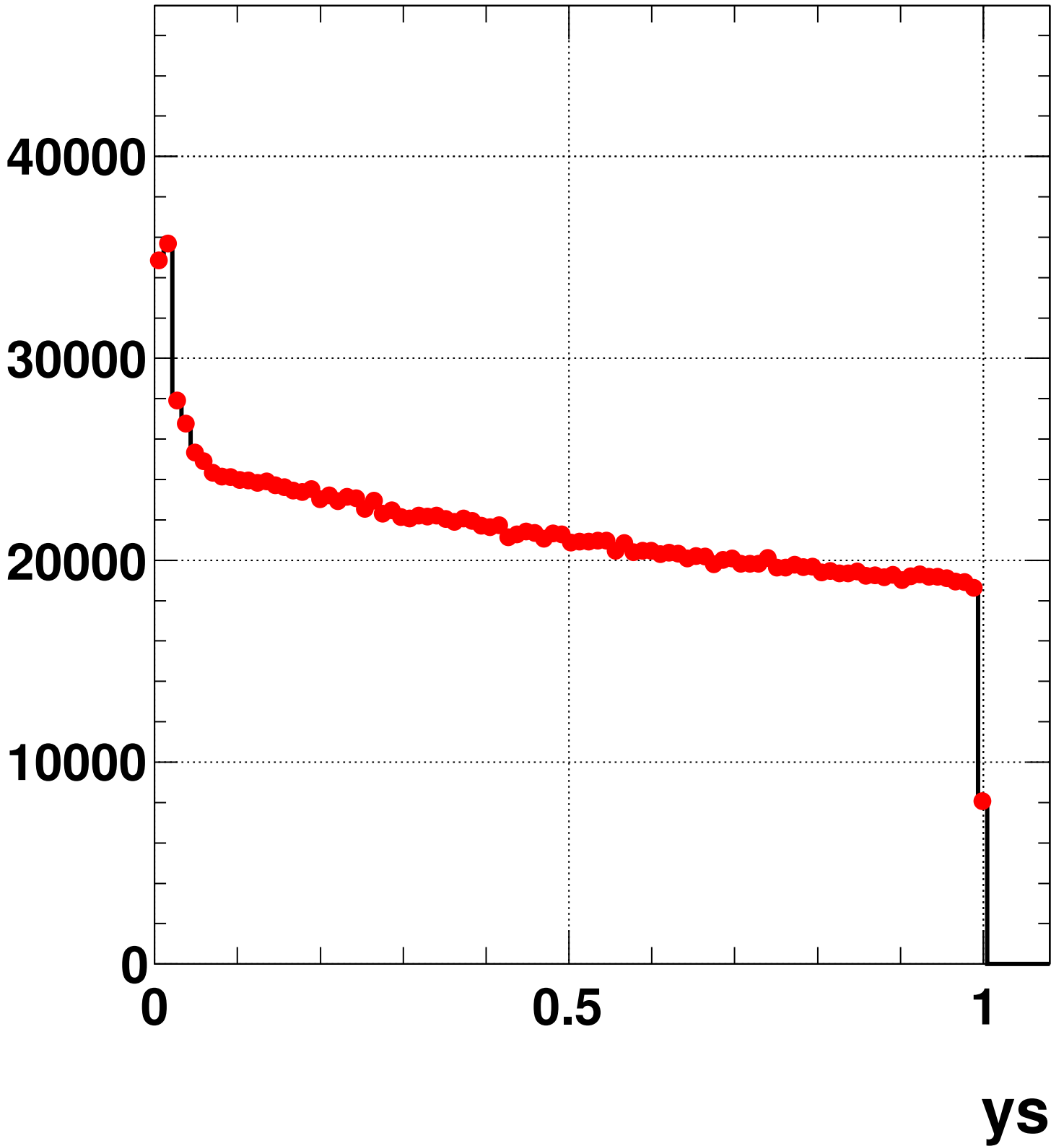
XS

selected x for Charm/DIS events

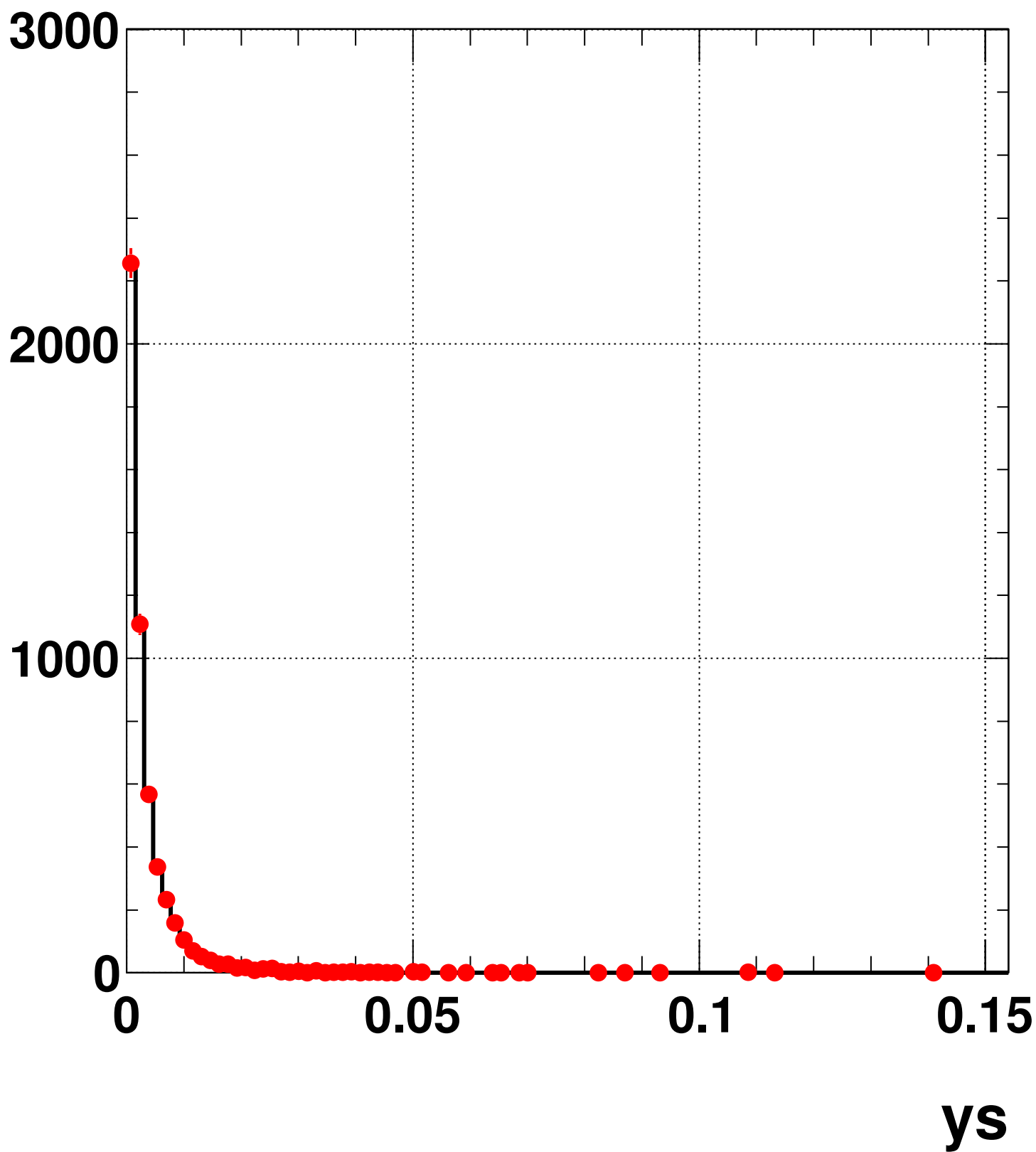


XS

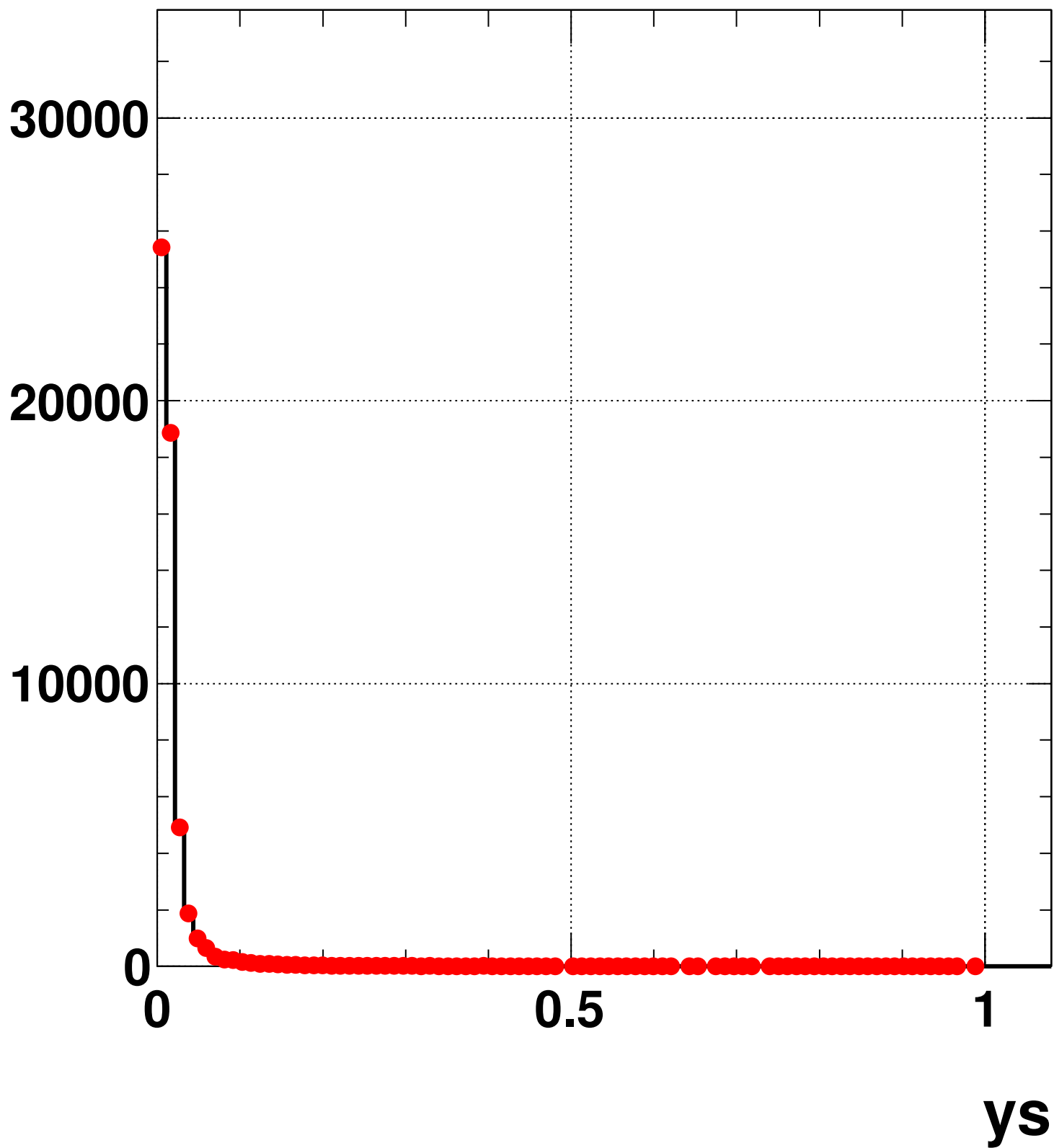
selected y for all events



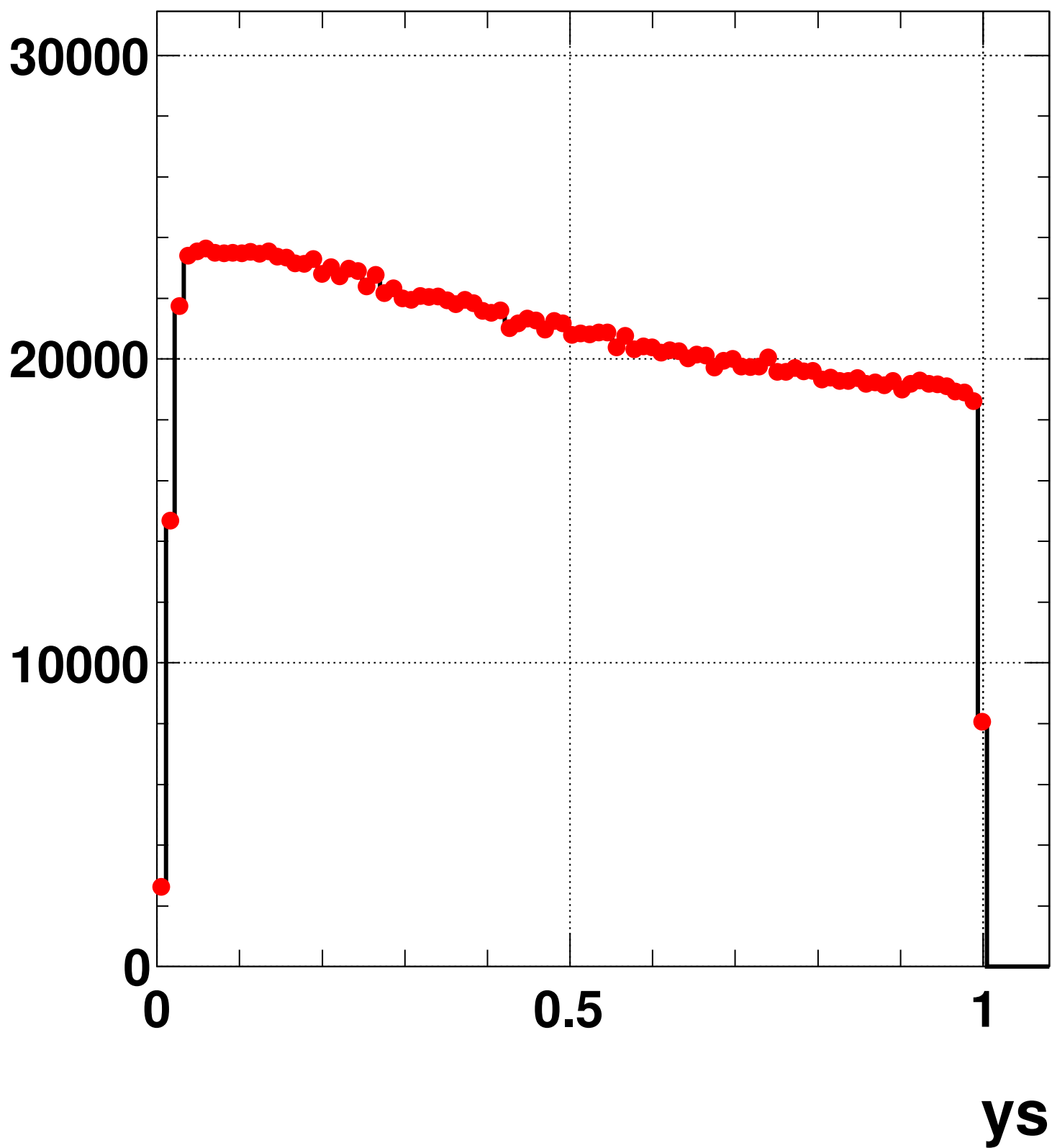
selected y for QEL events



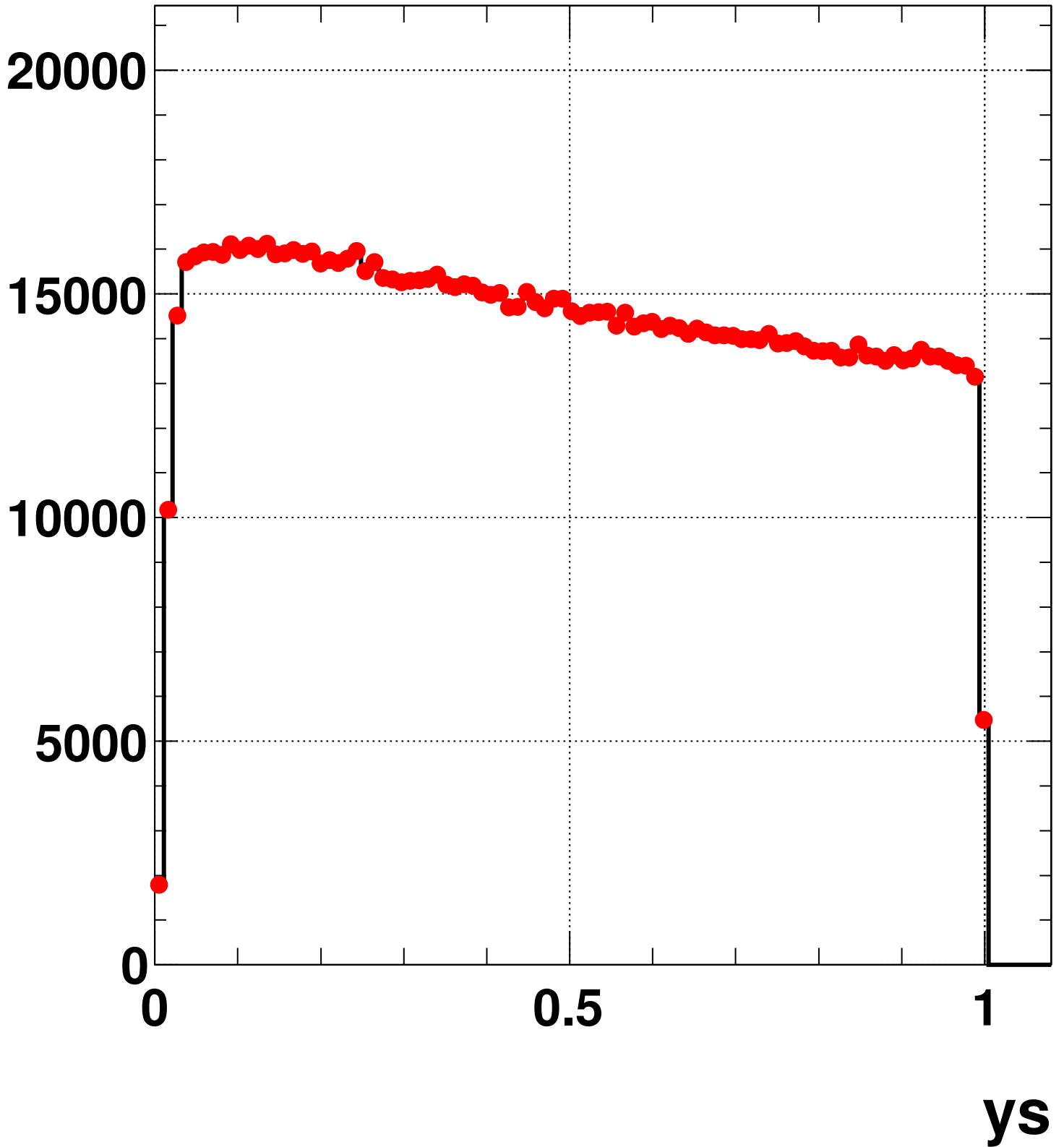
selected y for RES events



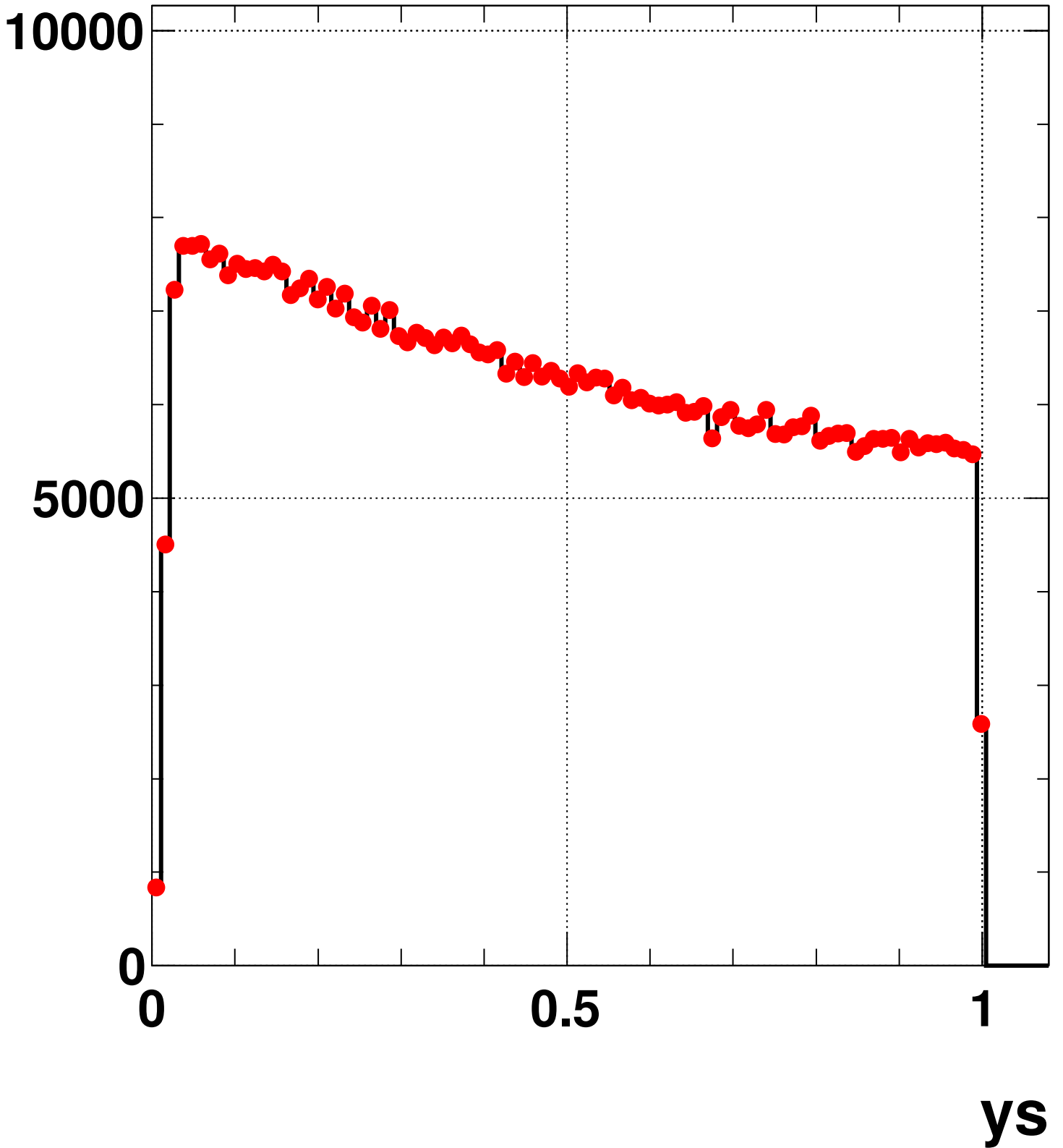
selected y for DIS events



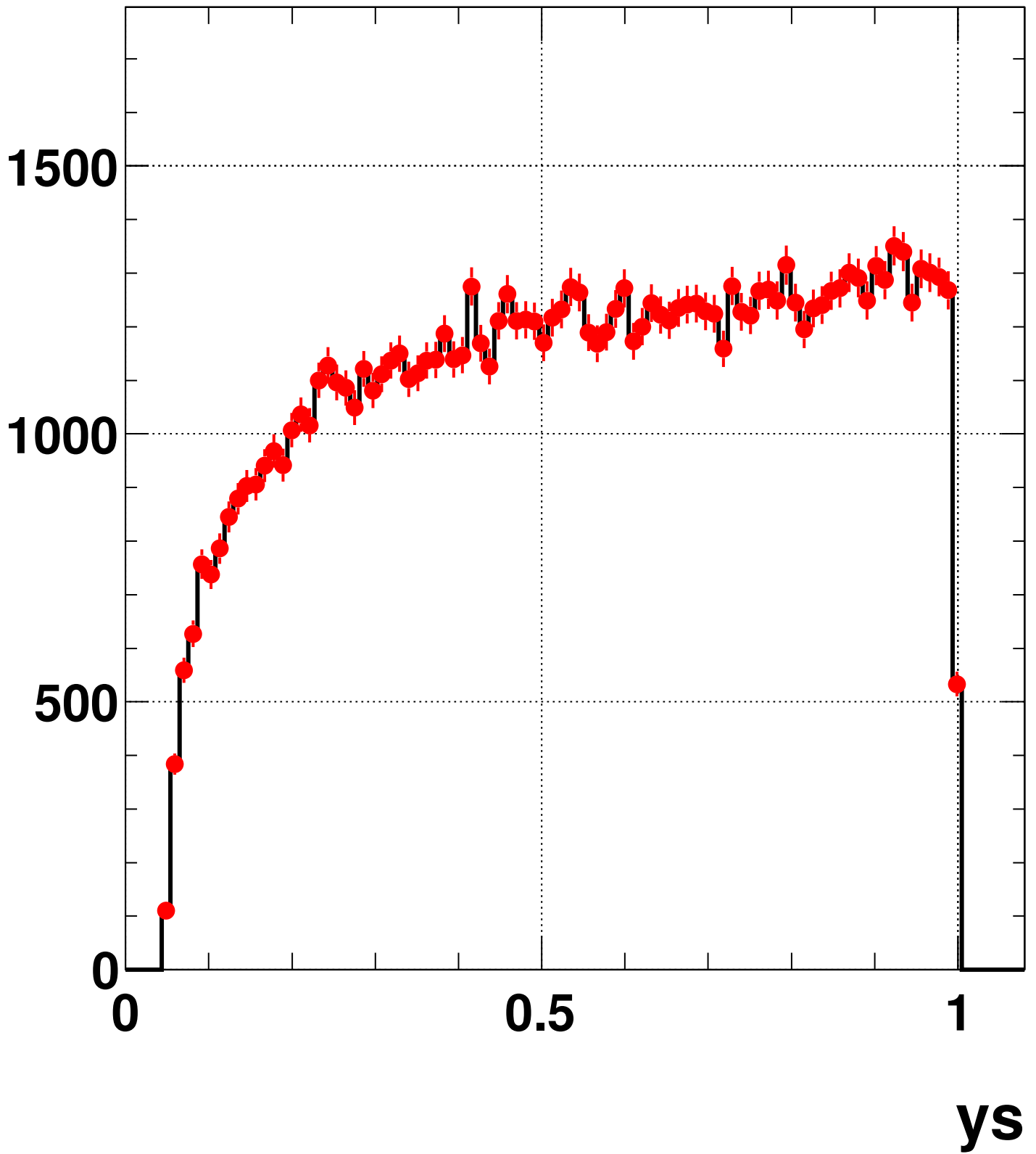
selected y for DIS CC events



selected y for DIS NC events



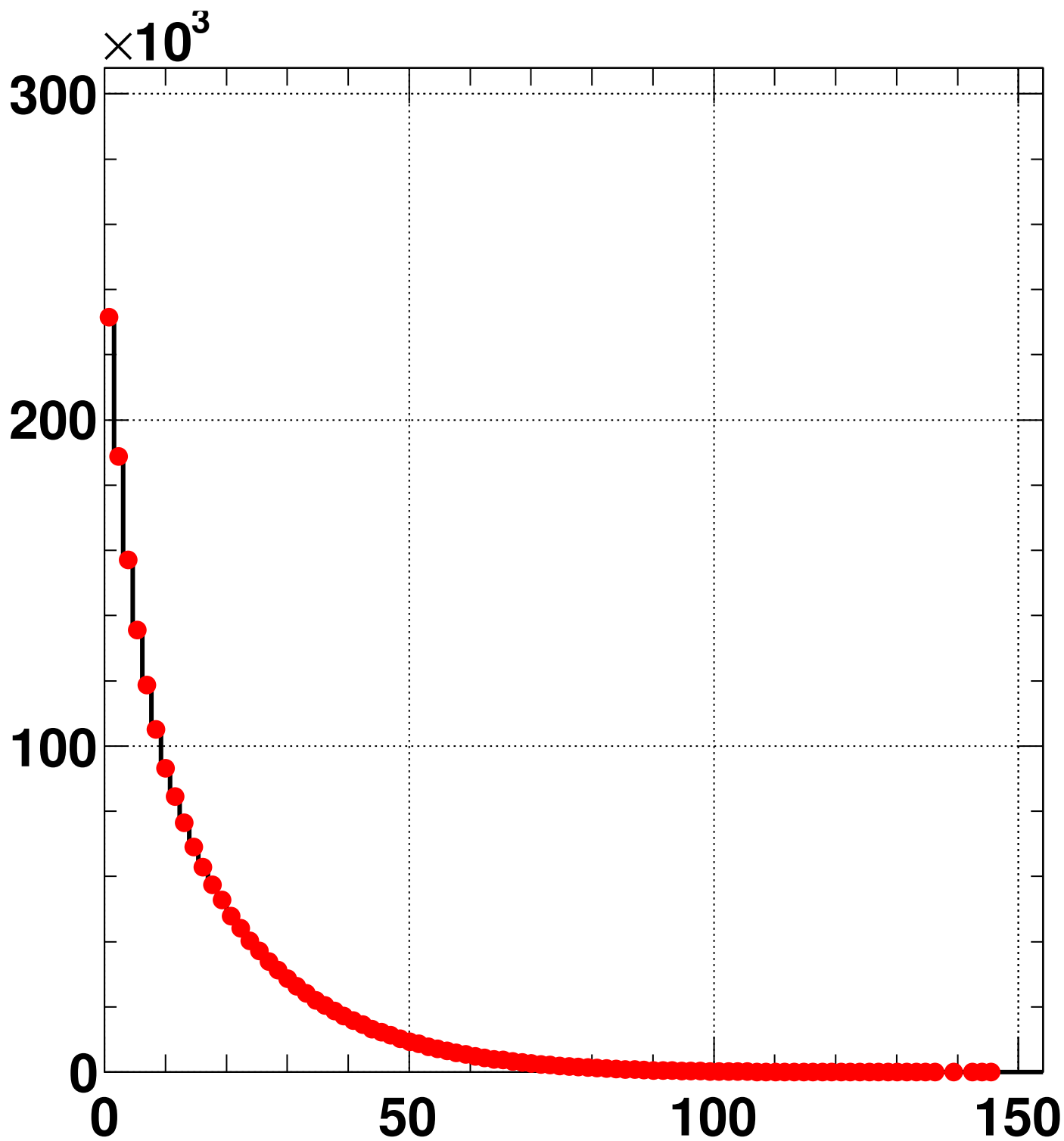
selected y for Charm/DIS events



Kinematical Quantities

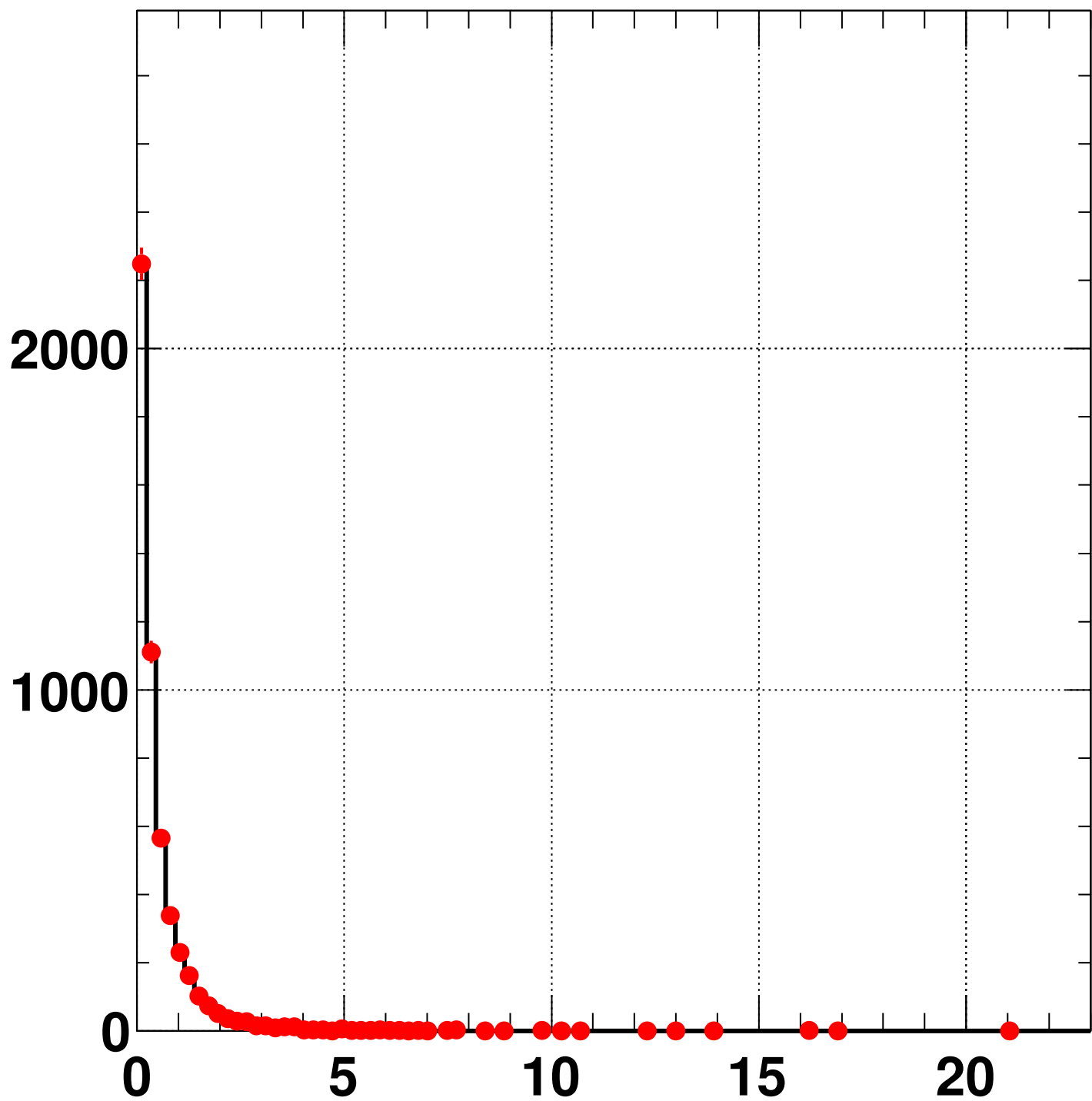
**Similar to the previous set of plots but
showing 'computed' rather than 'selected' variables**

computed Q2 for all events



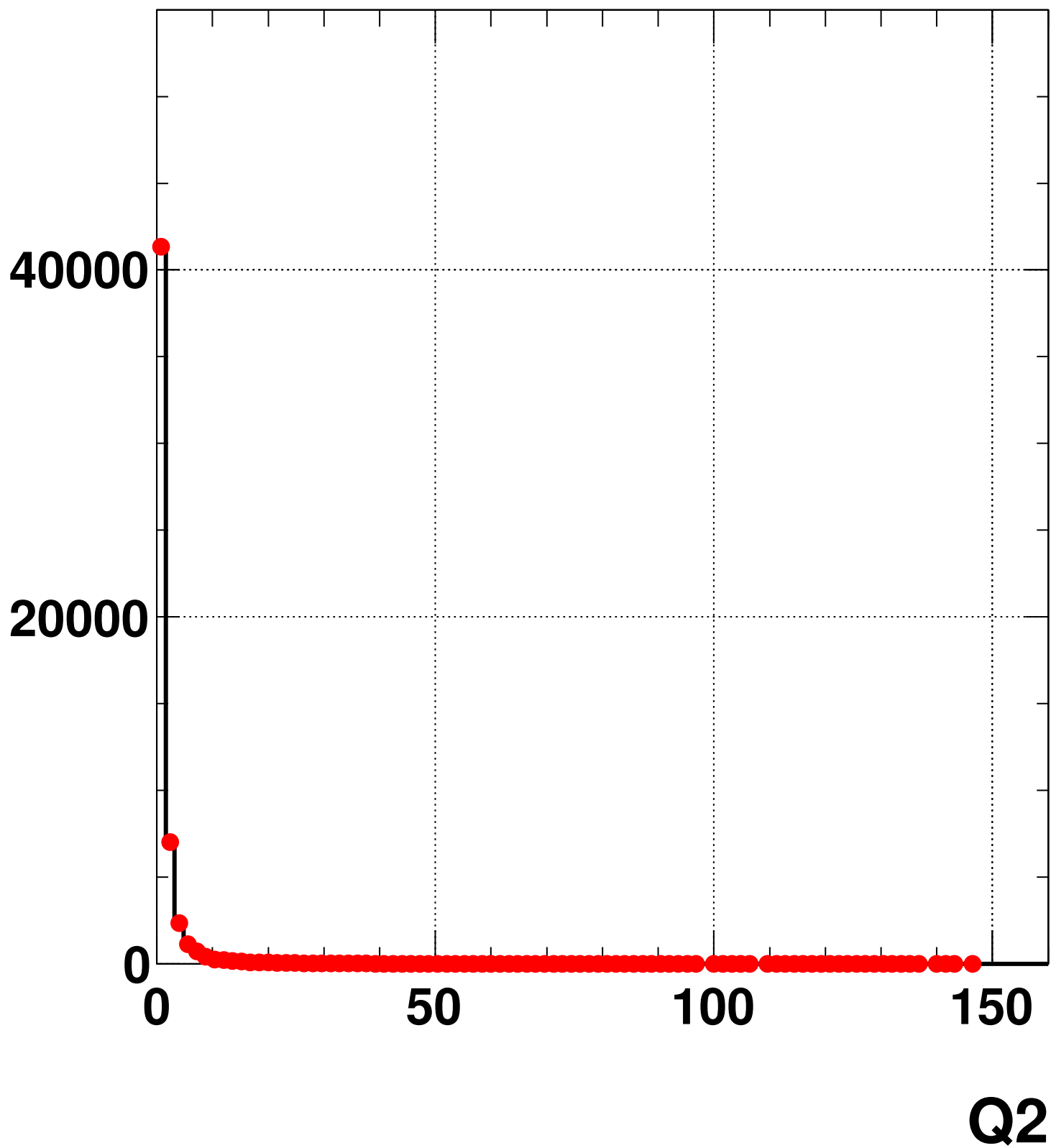
Q2

computed Q2 for QEL events

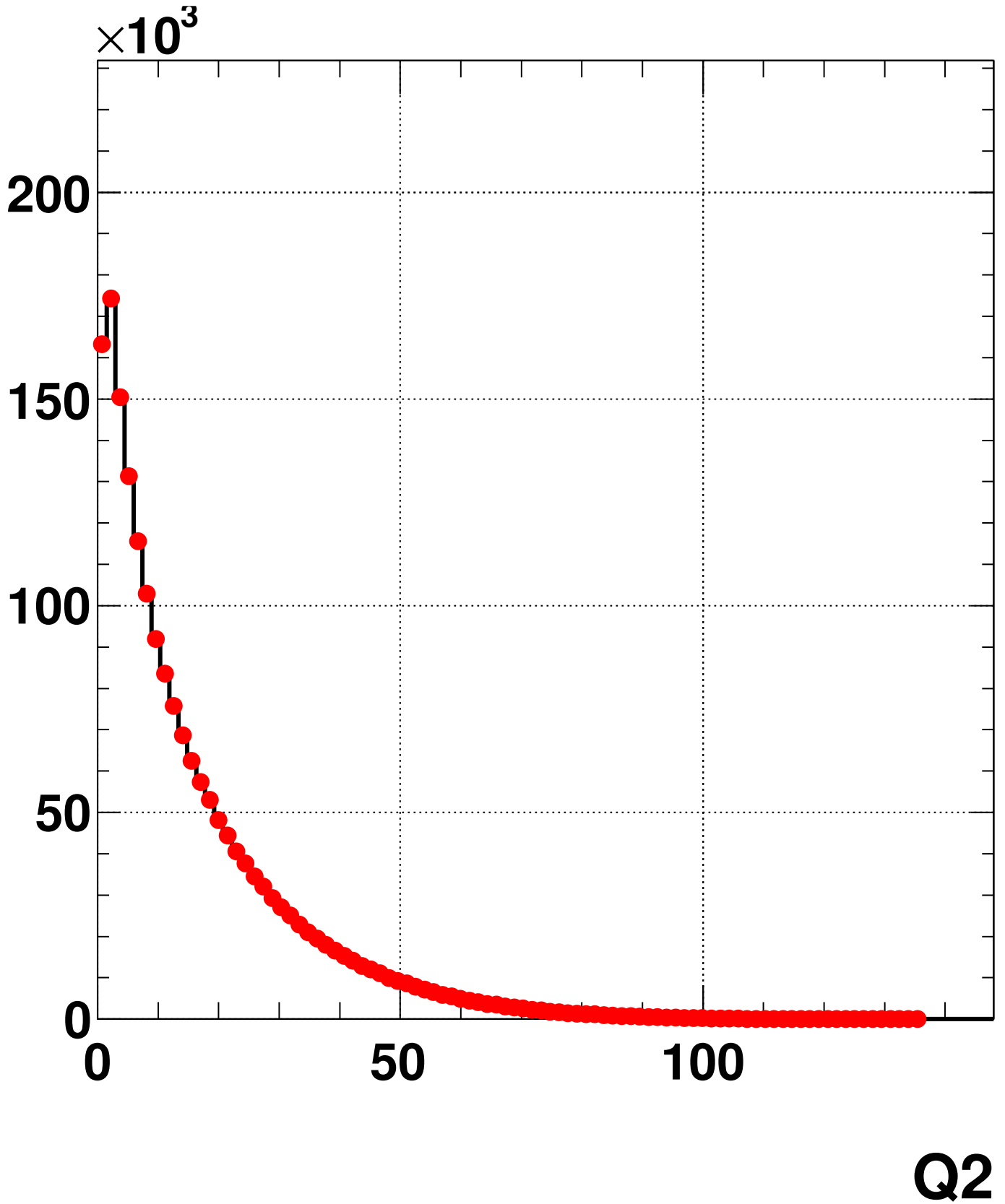


Q2

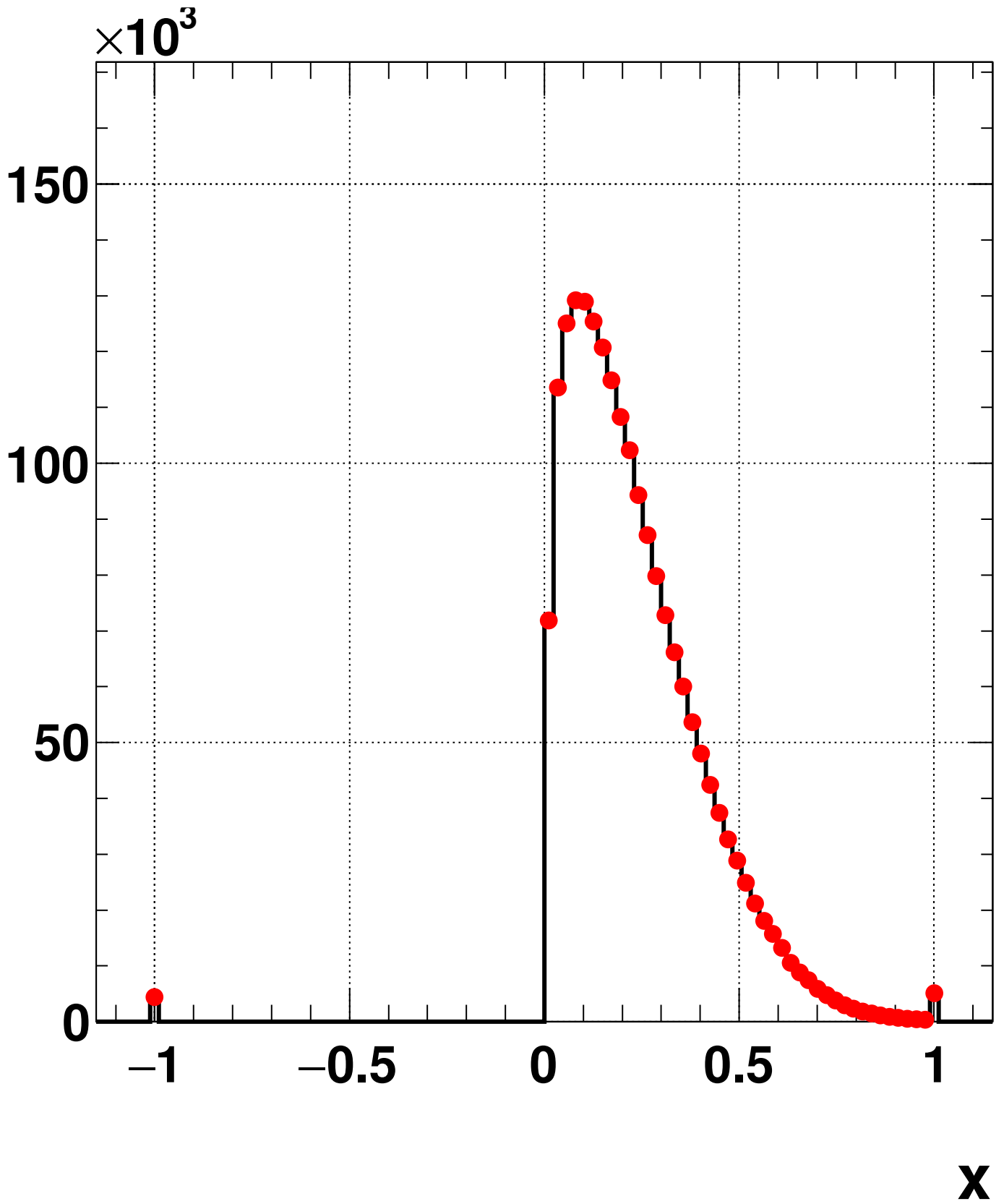
computed Q2 for RES events



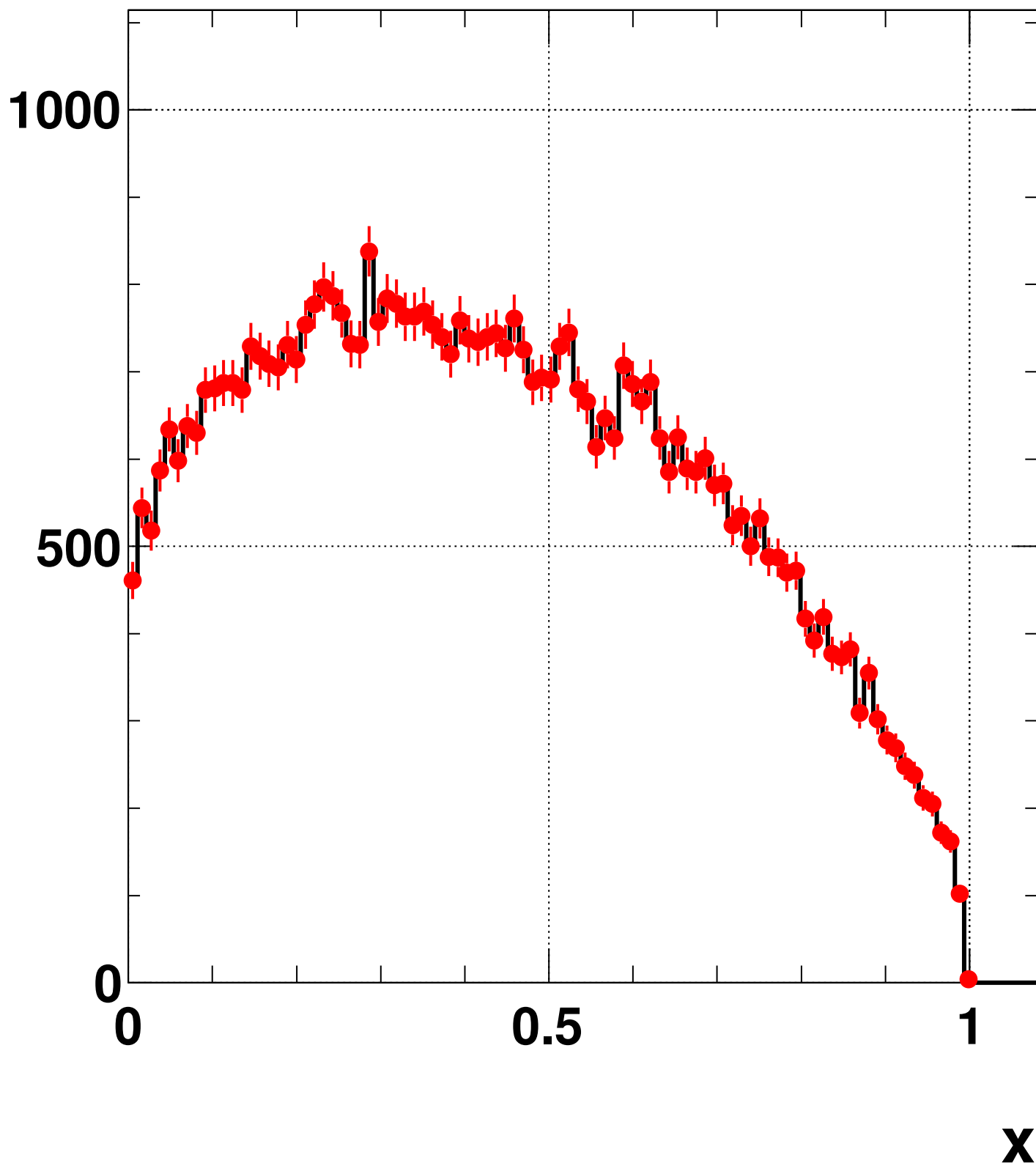
computed Q2 for DIS events



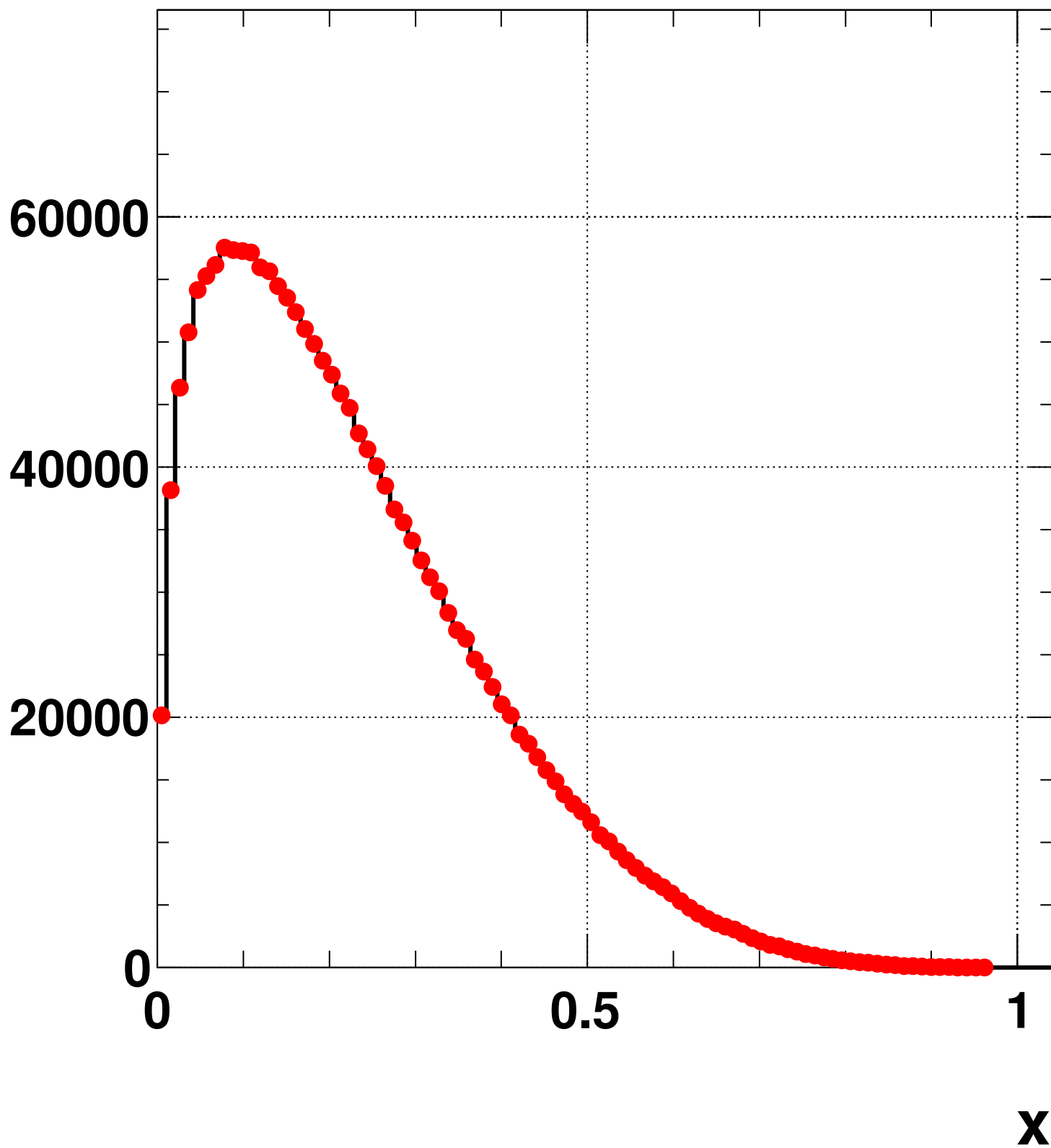
computed x for all events



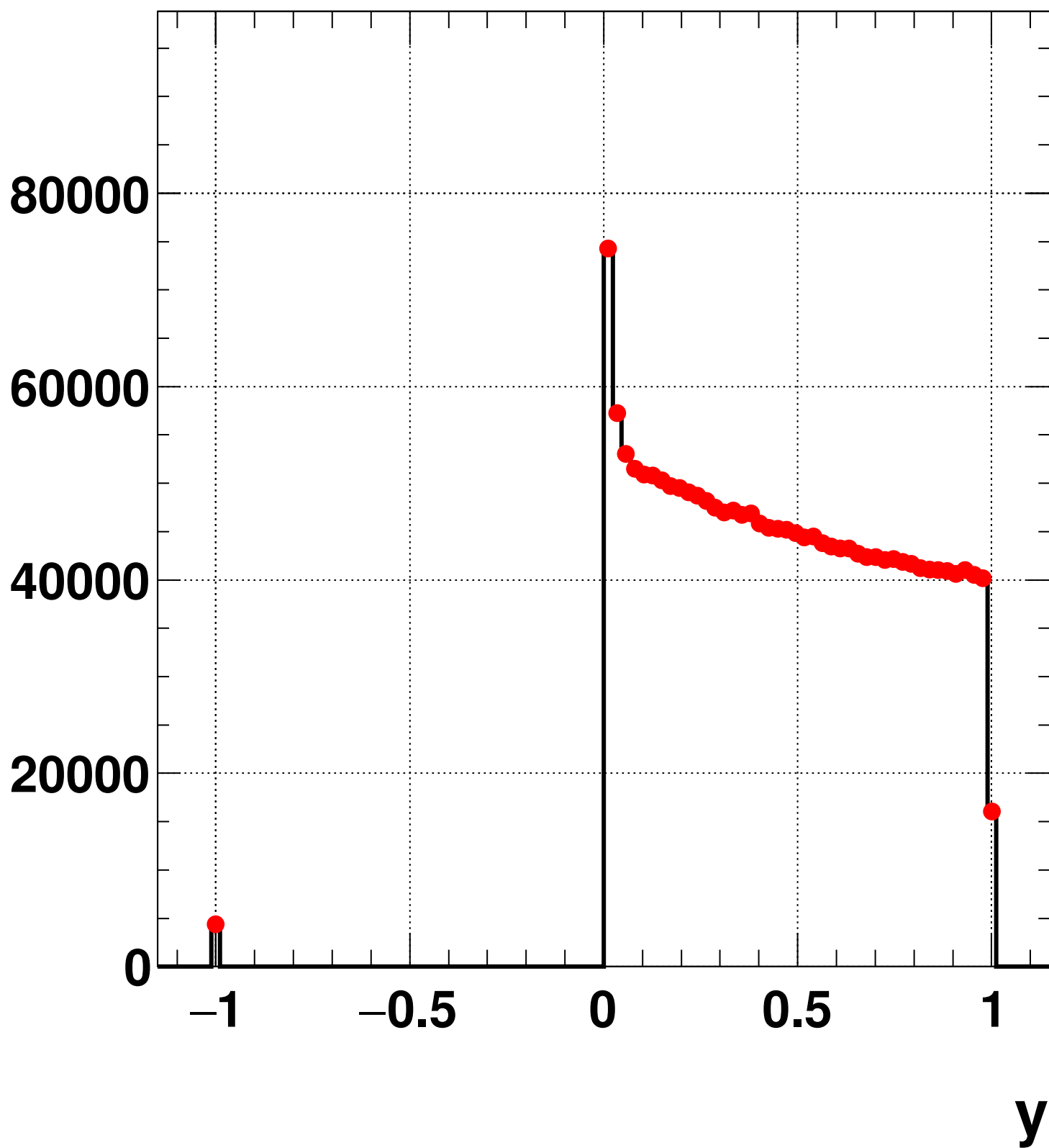
computed x for RES events



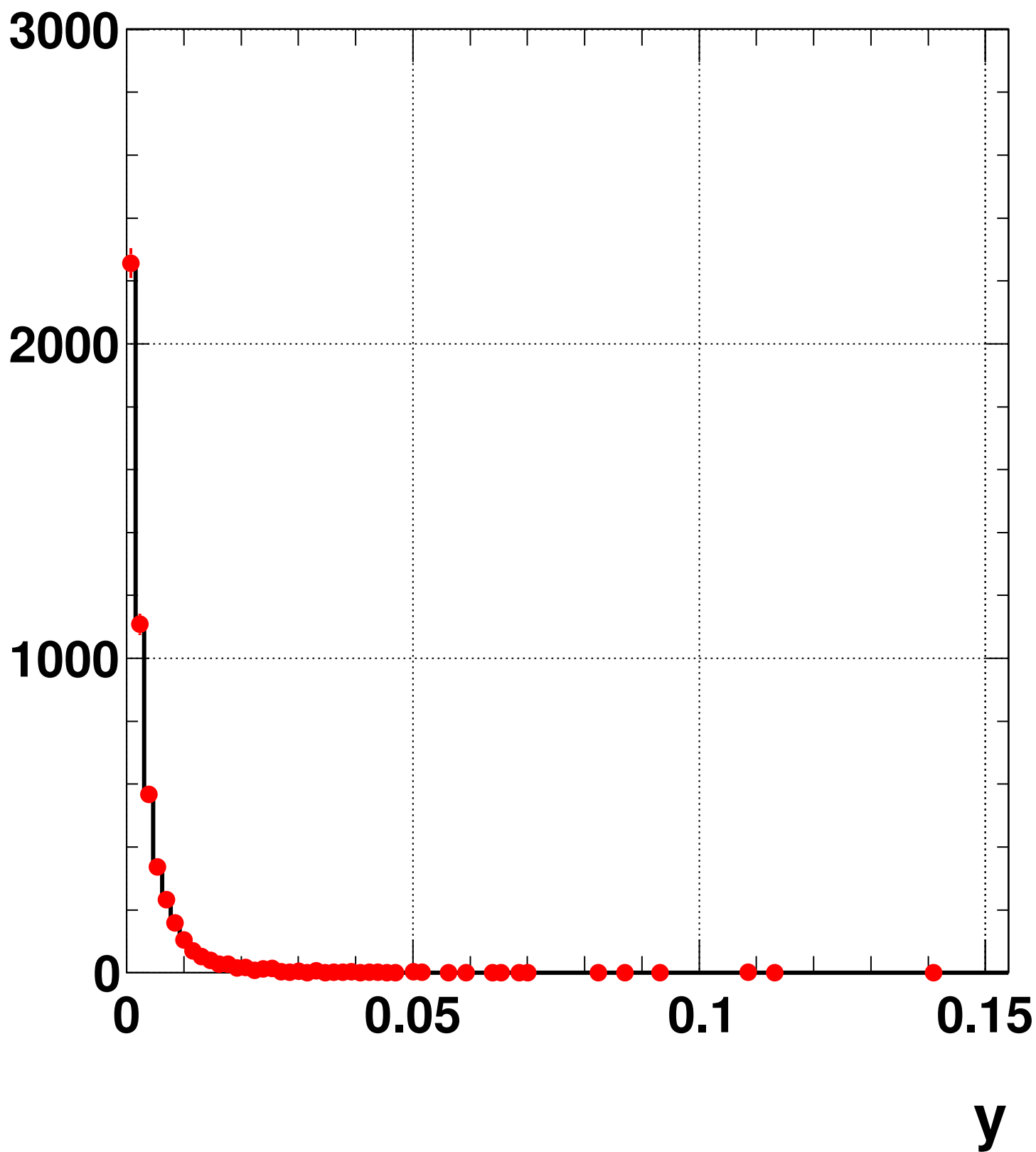
computed x for DIS events



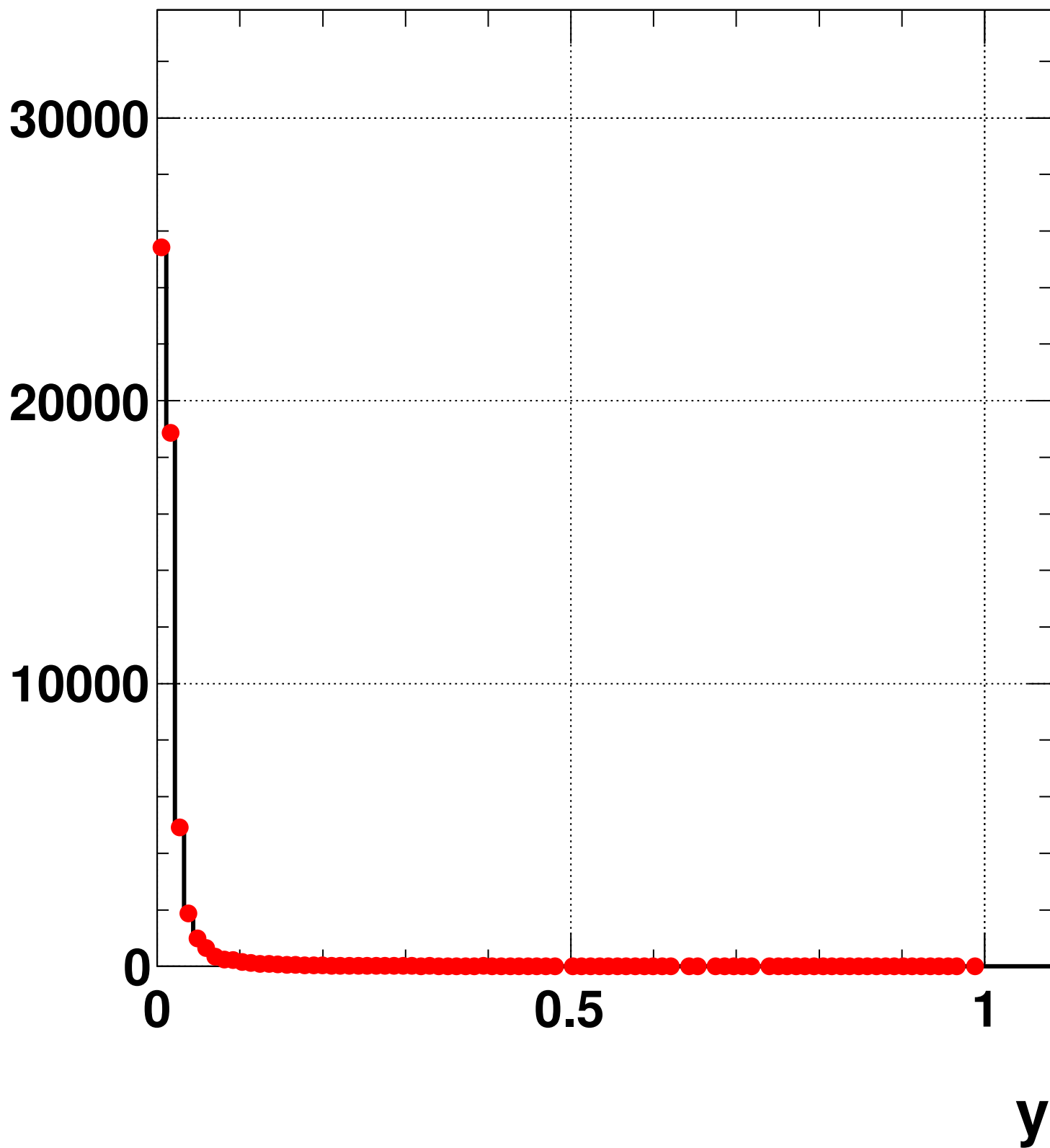
computed y for all events



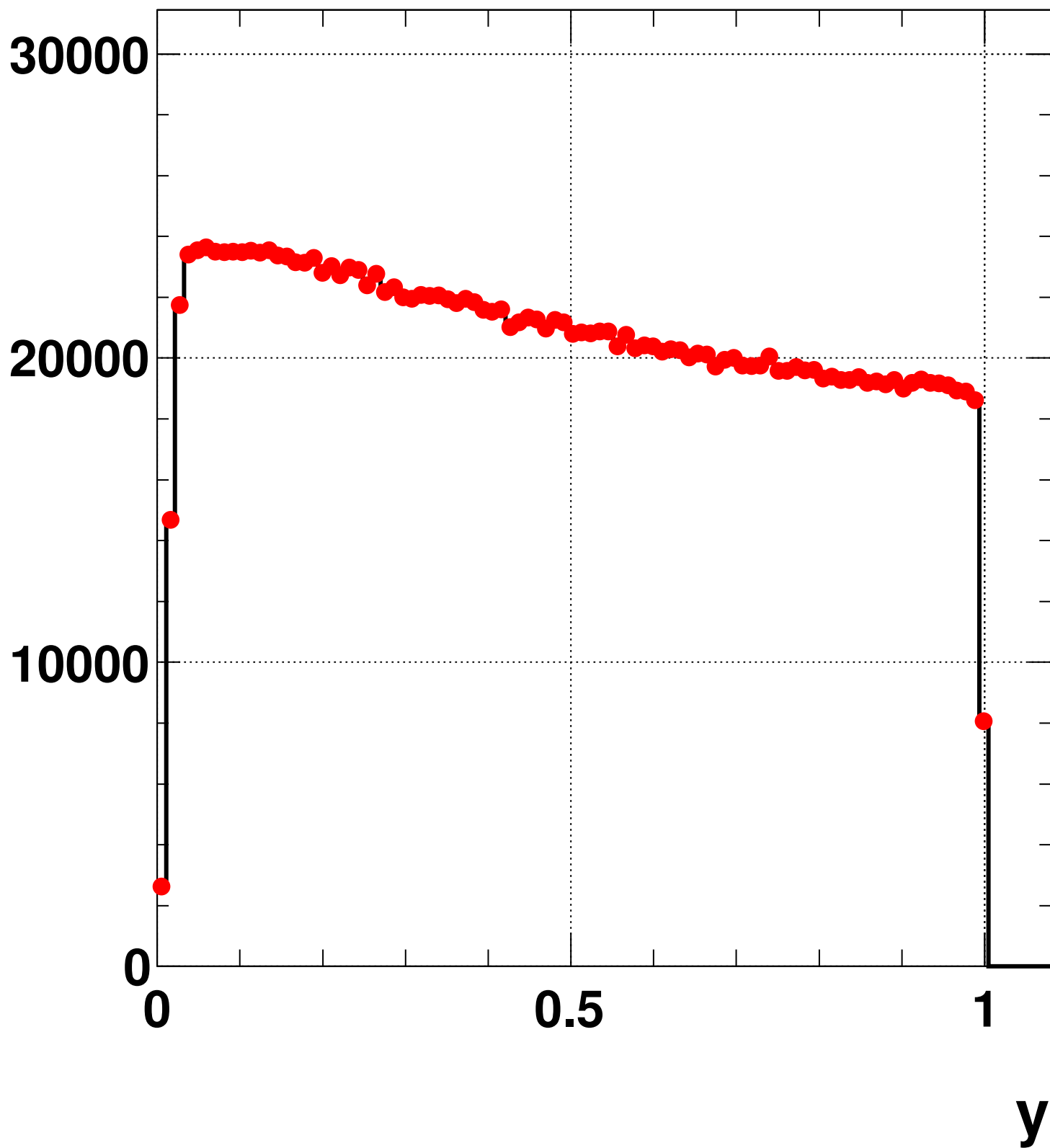
computed y for QEL events



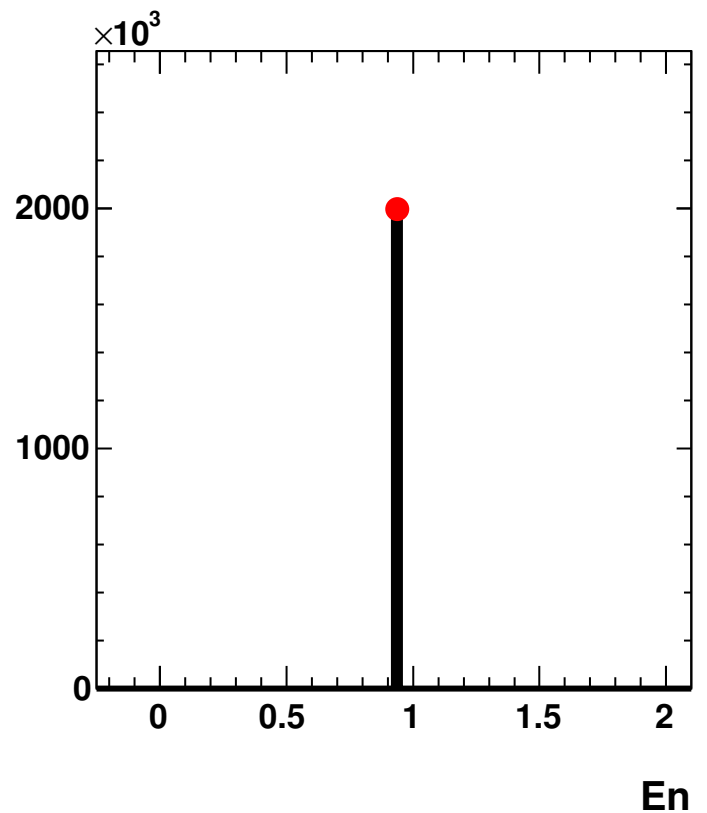
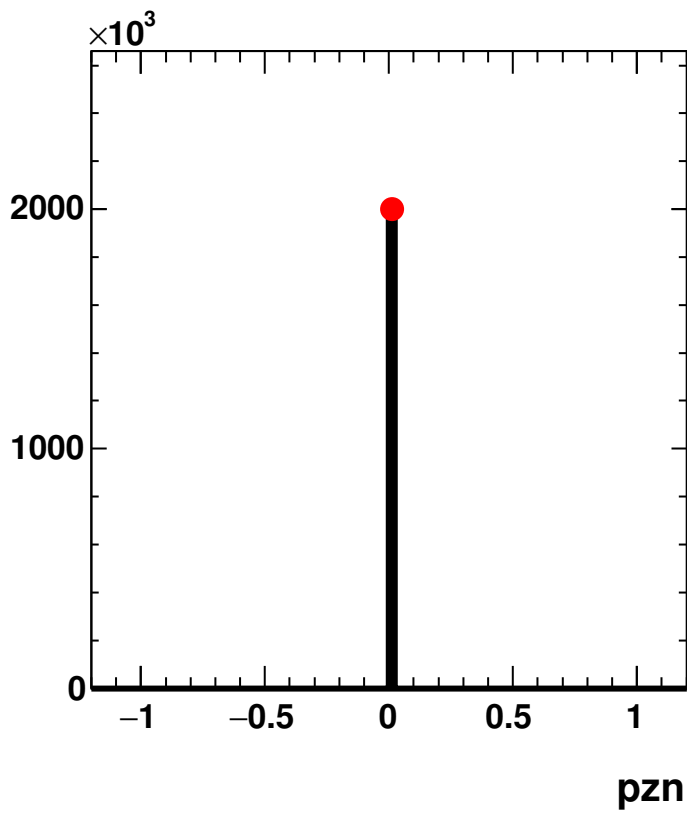
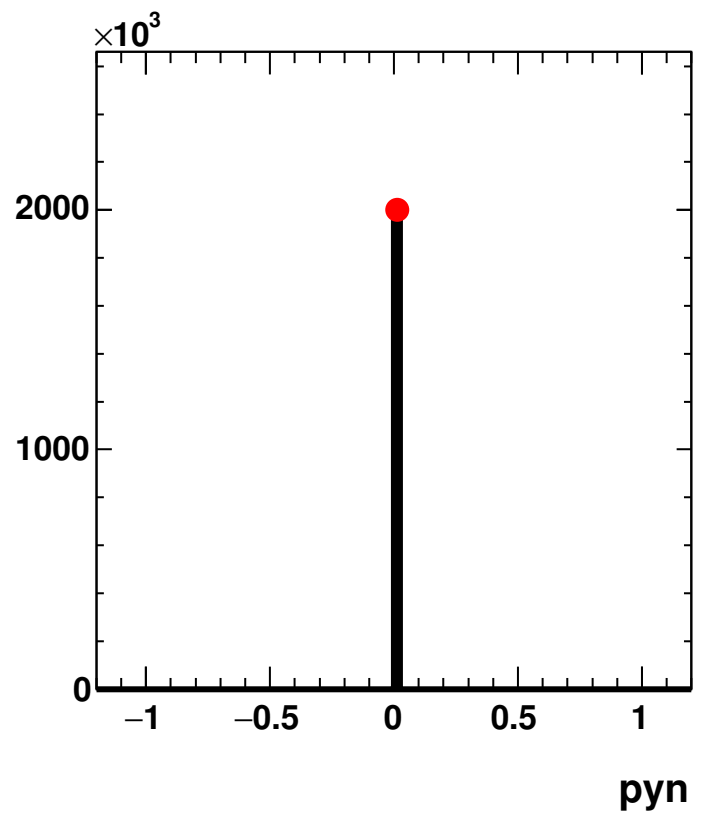
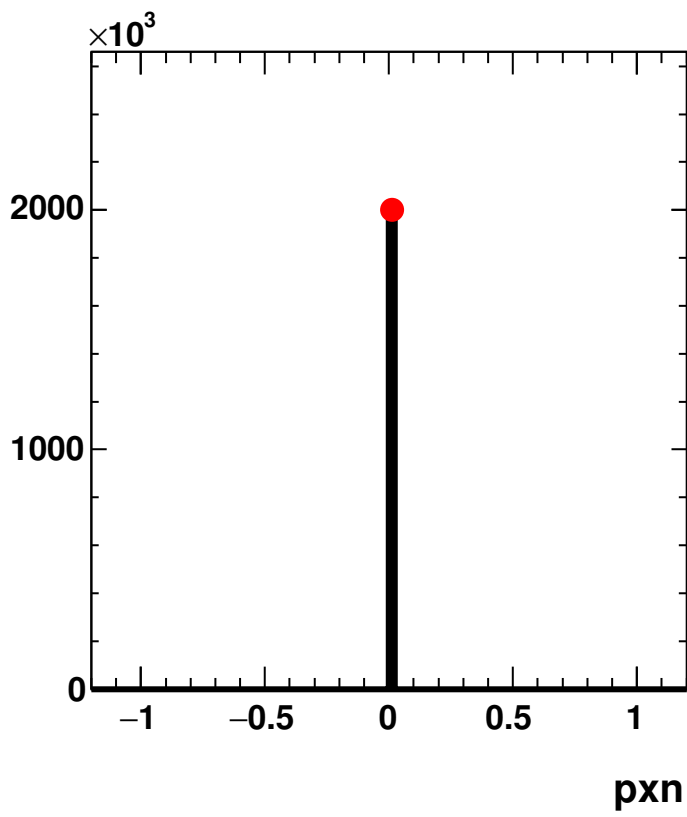
computed y for RES events



computed y for DIS events

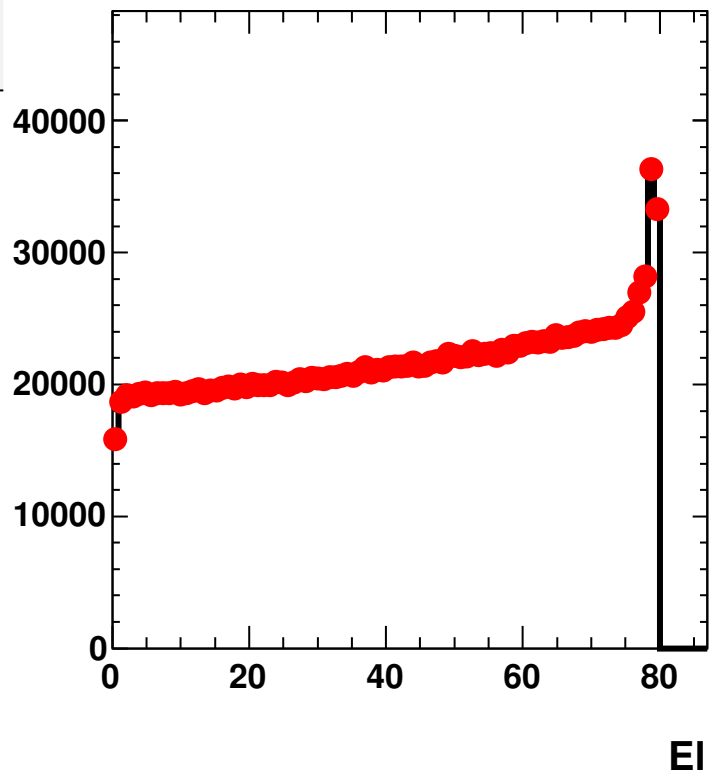
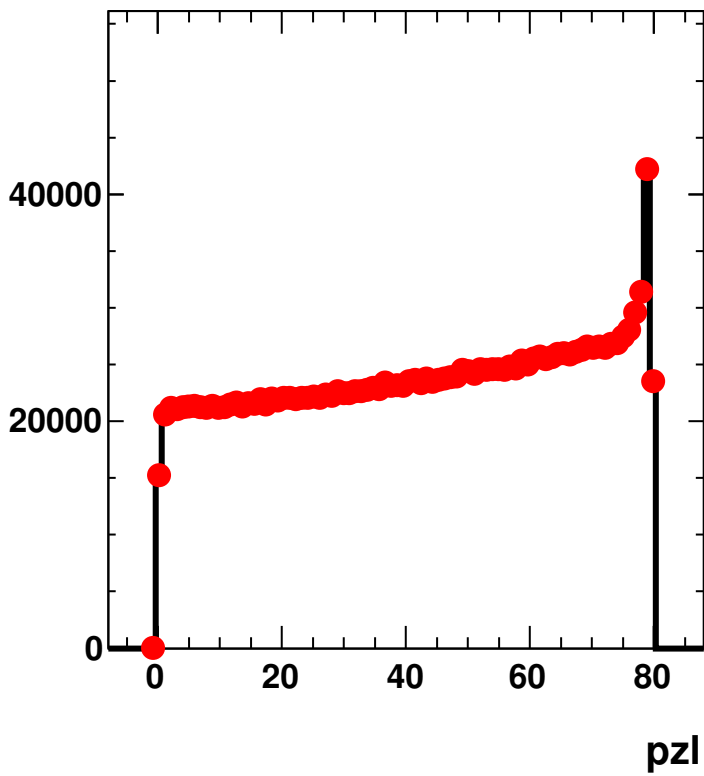
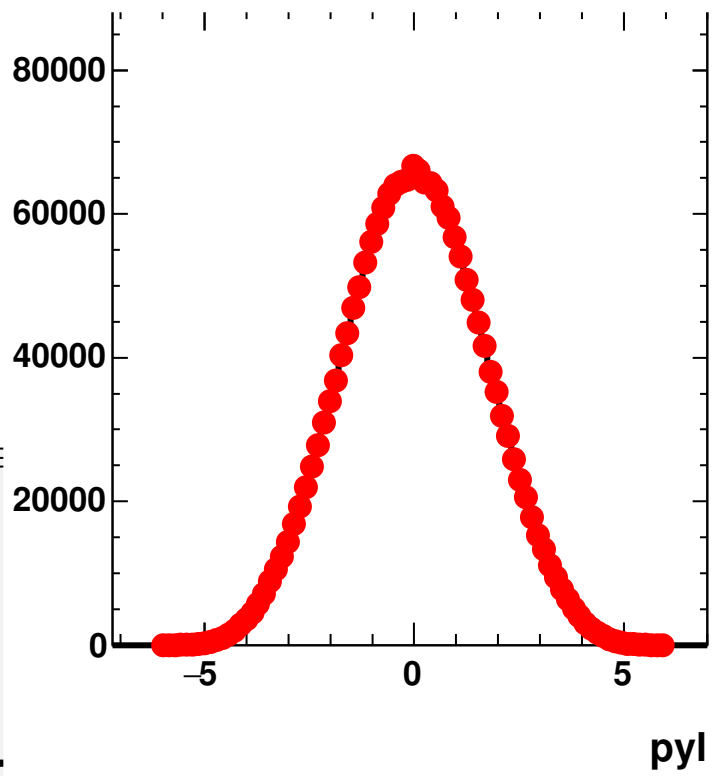
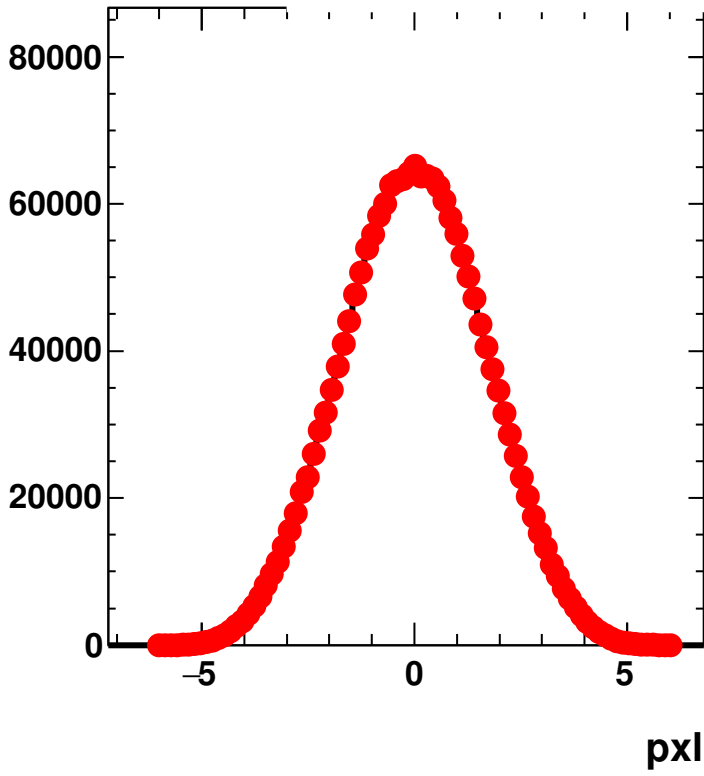


Initial state nucleon 4-Momentum

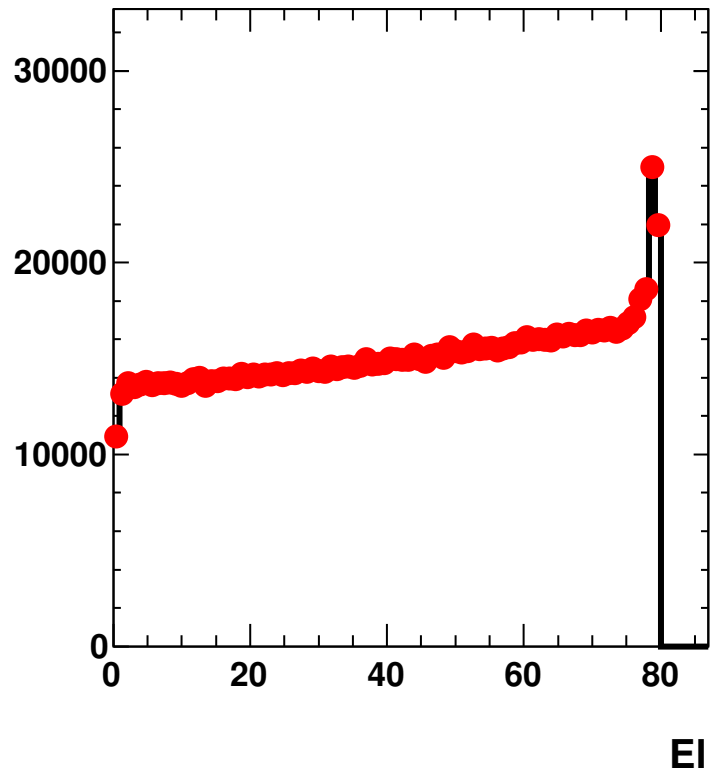
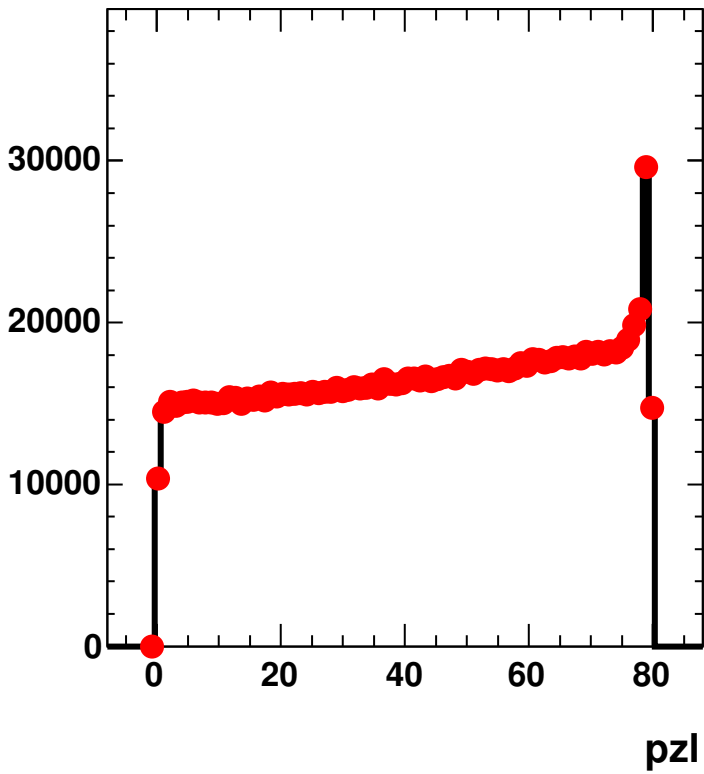
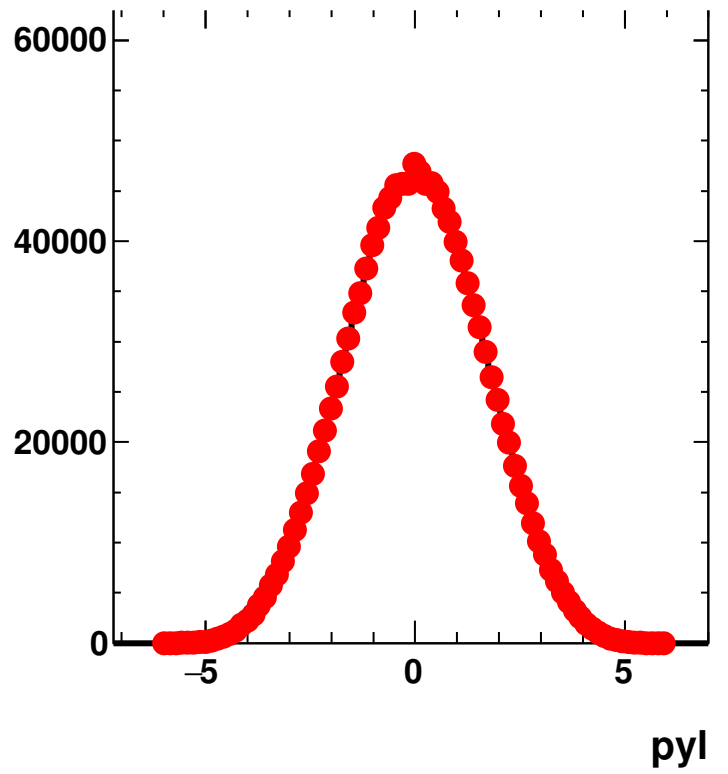
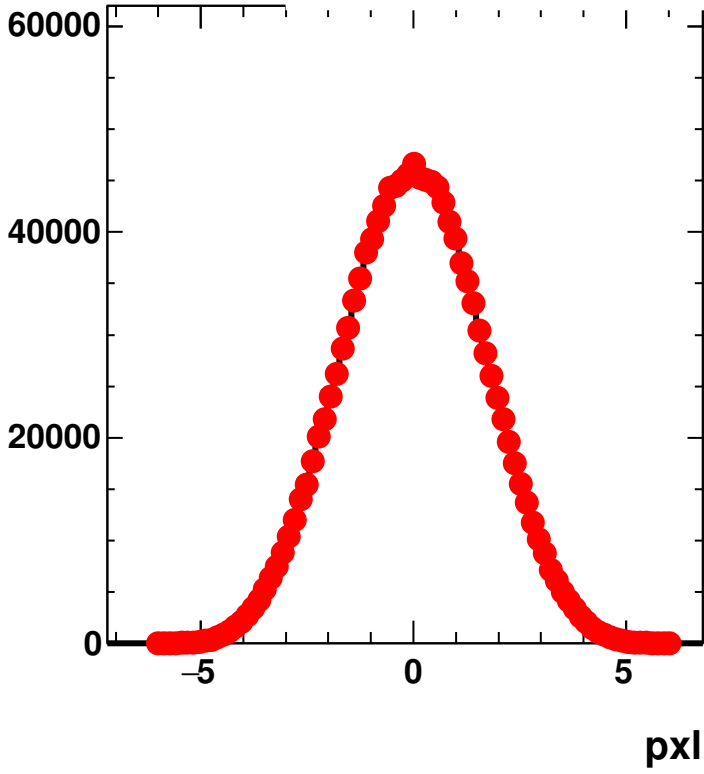


Final State Primary Lepton 4-Momentum

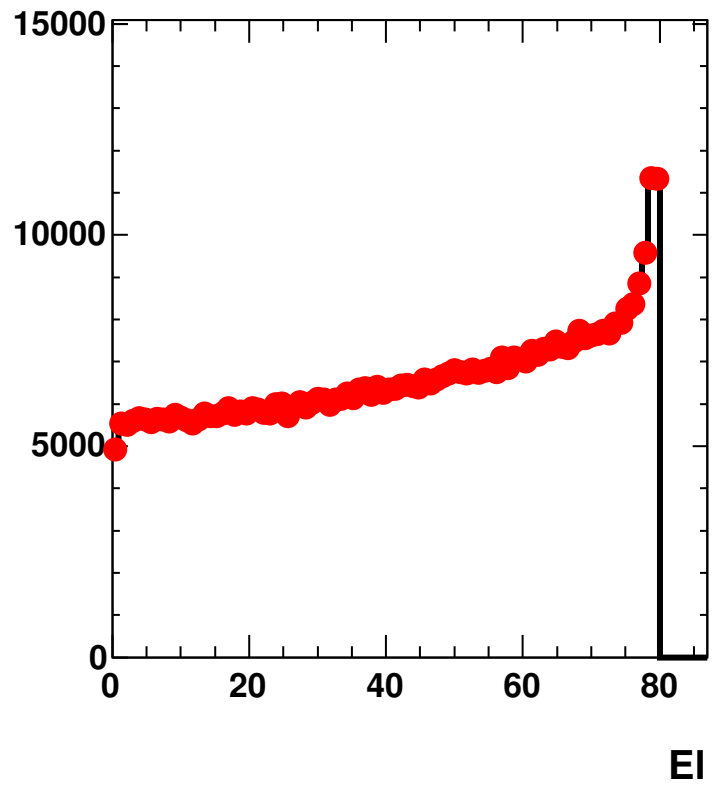
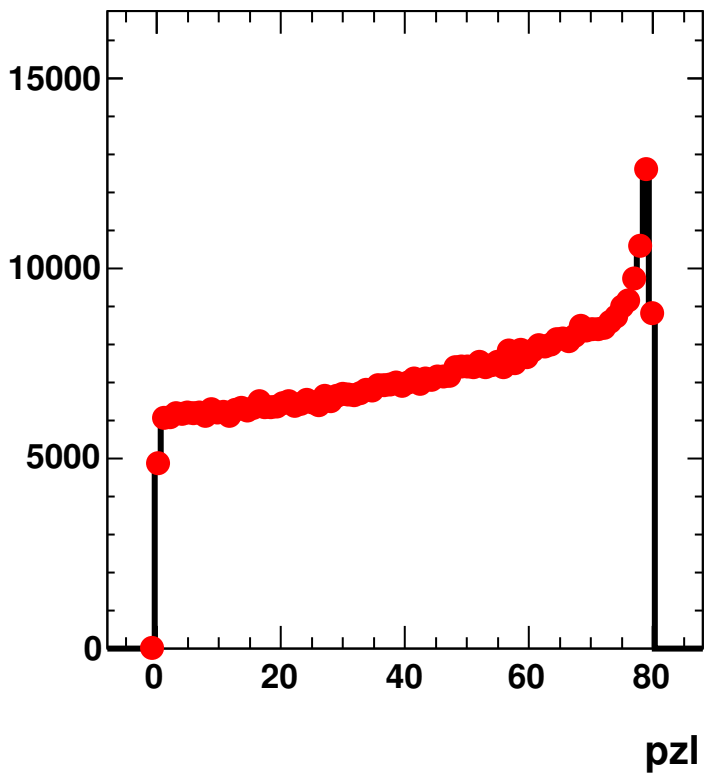
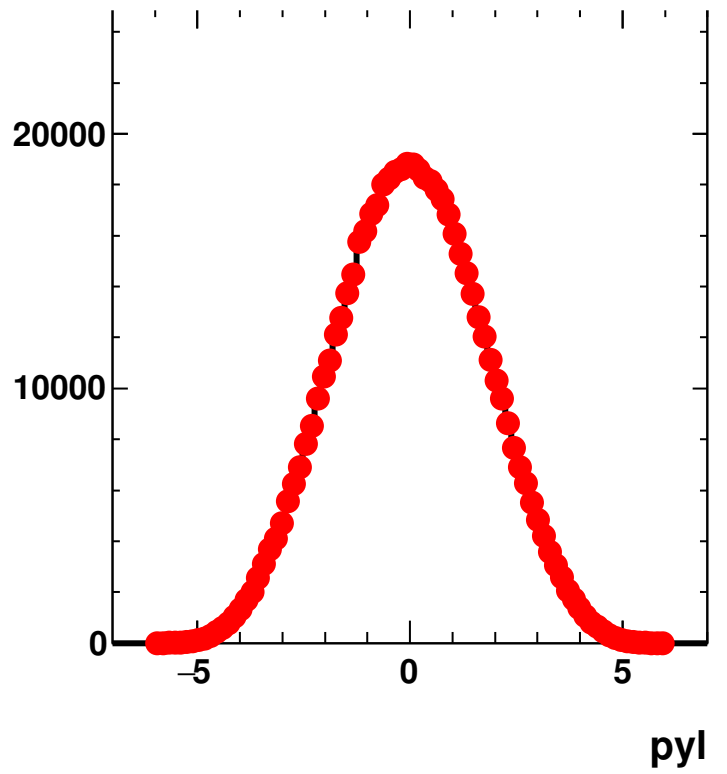
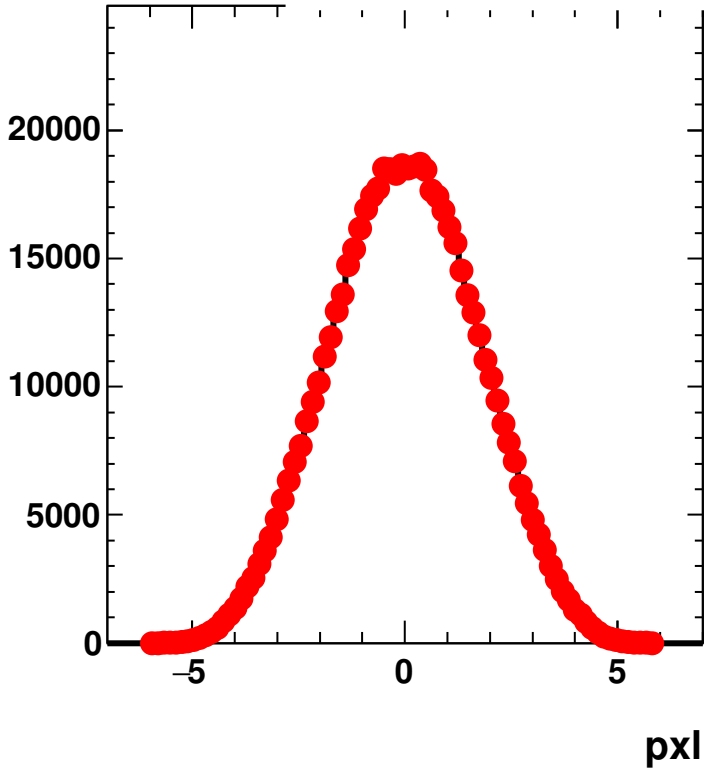
Final state primary lepton 4-p: All events



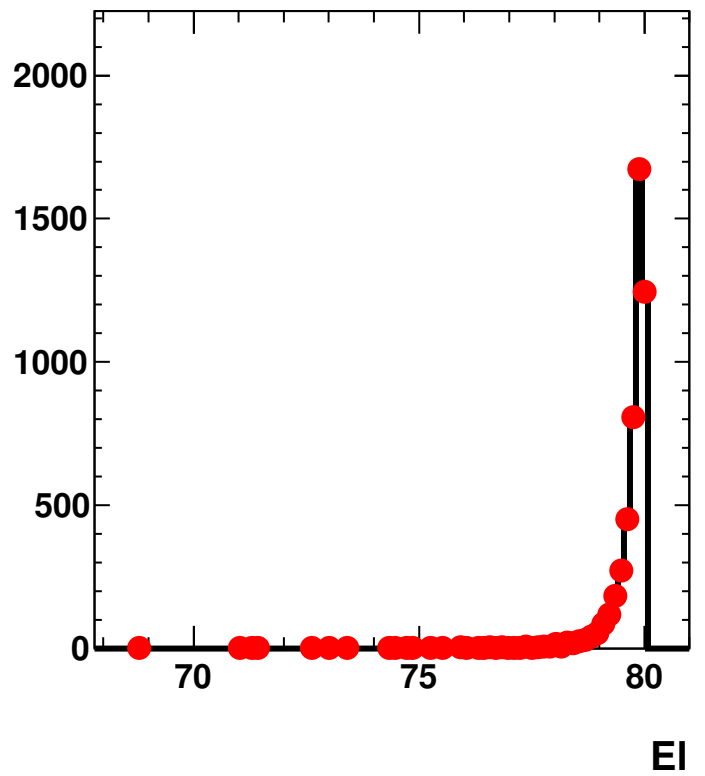
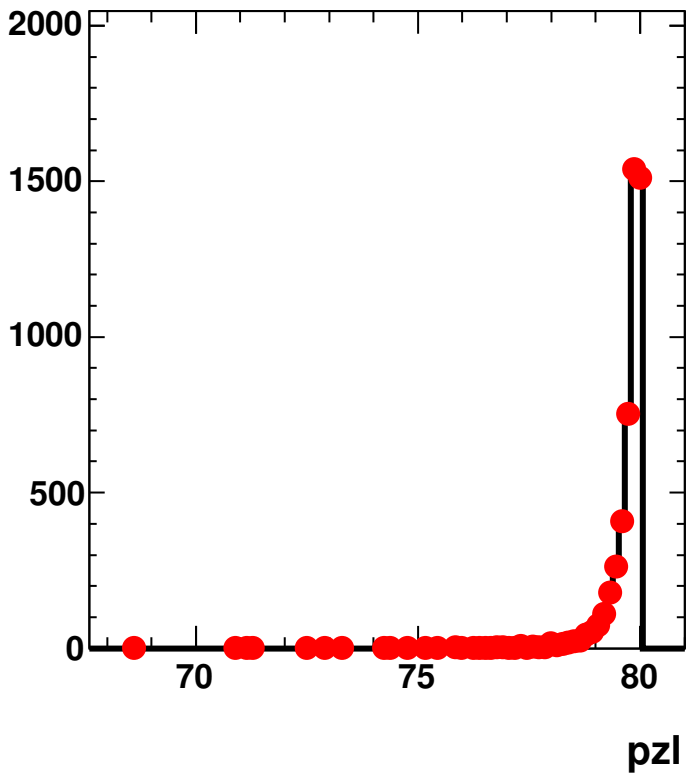
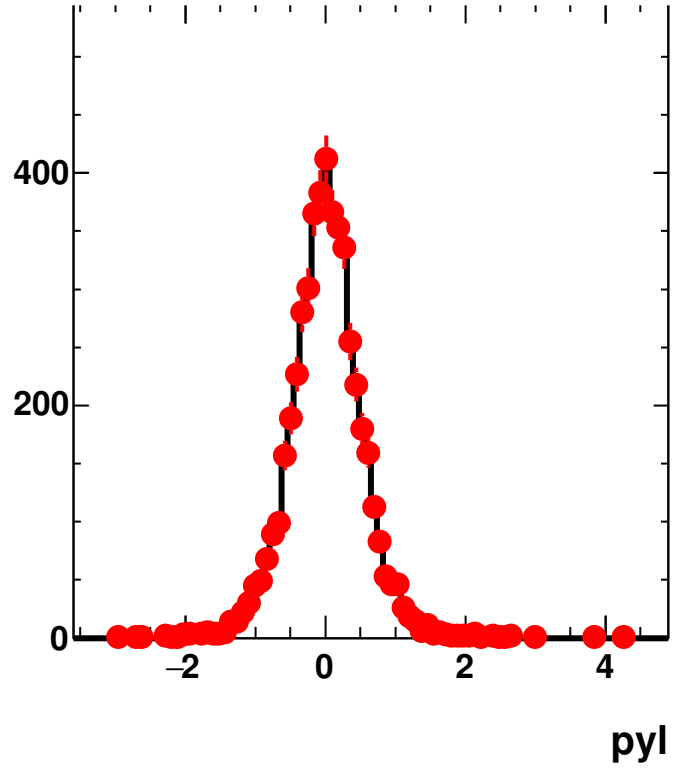
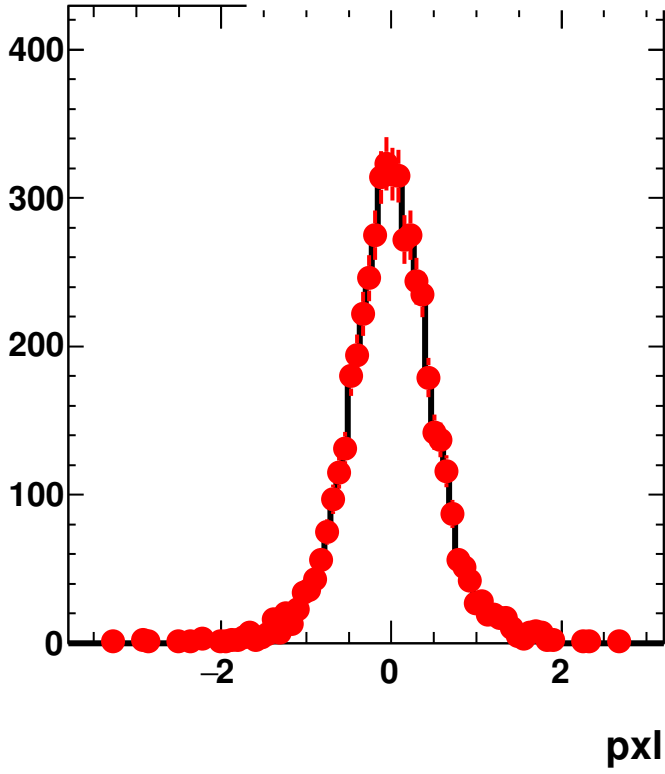
Final state primary lepton 4-p: All CC events



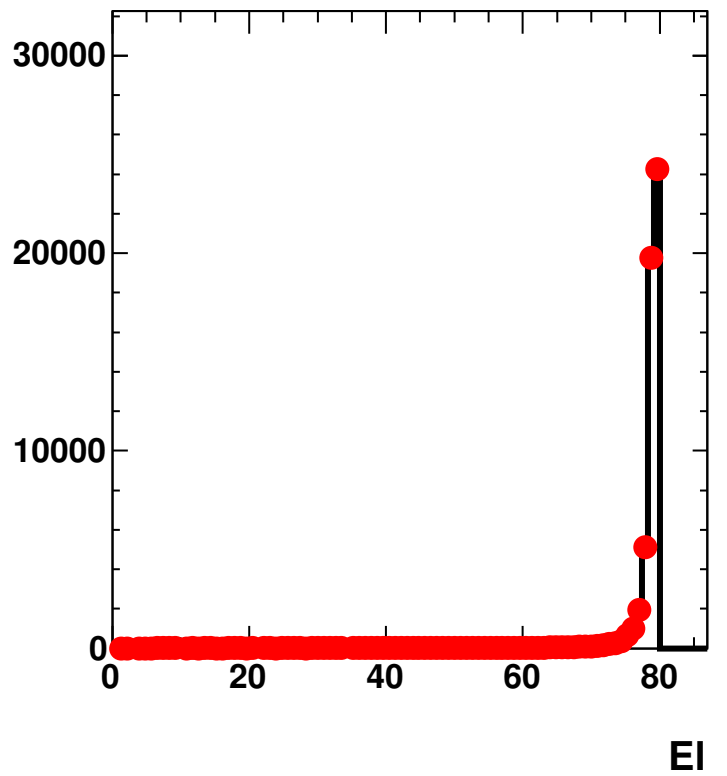
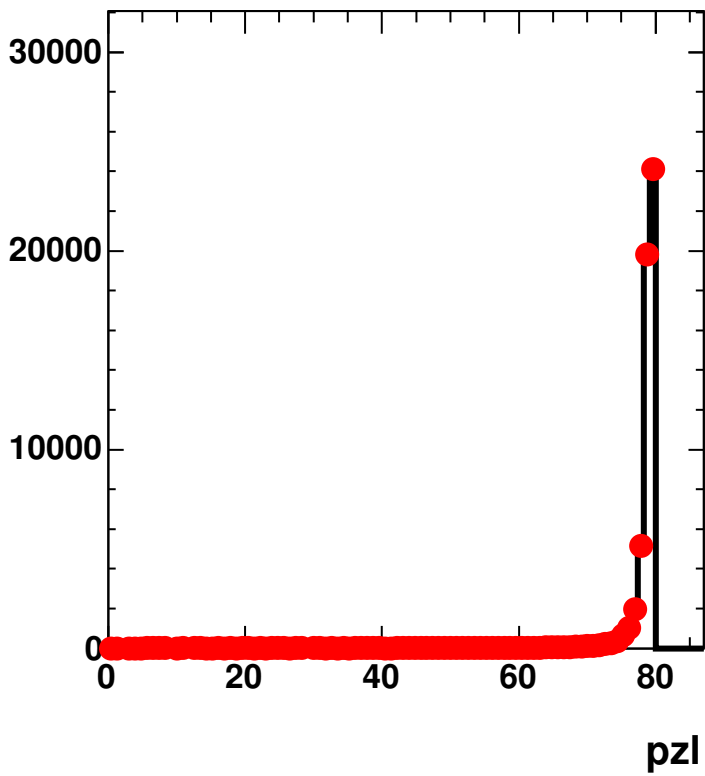
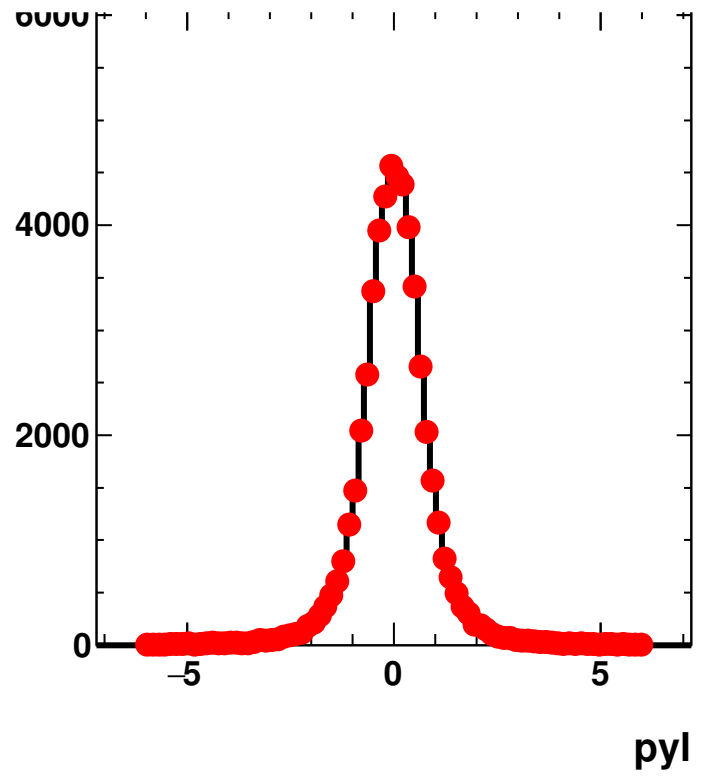
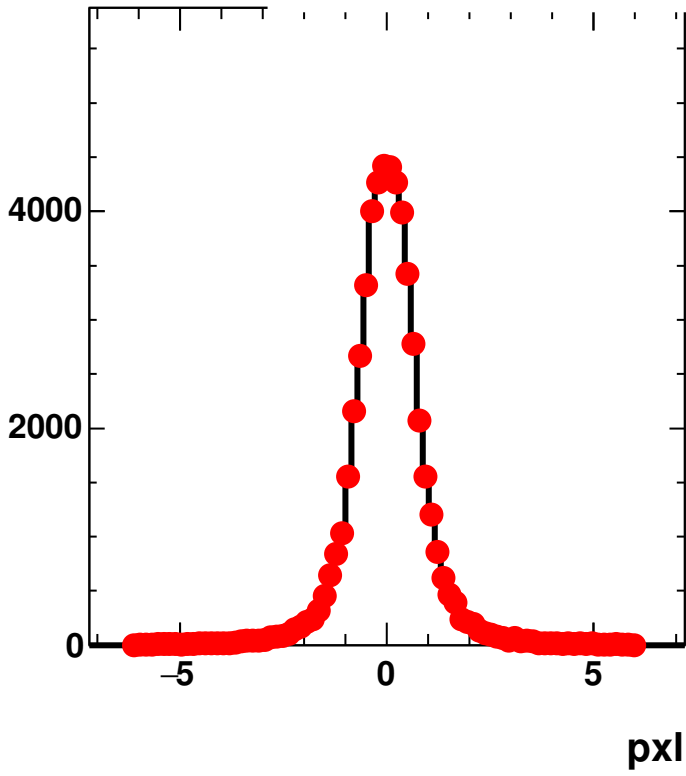
Final state primary lepton 4-p: All NC events



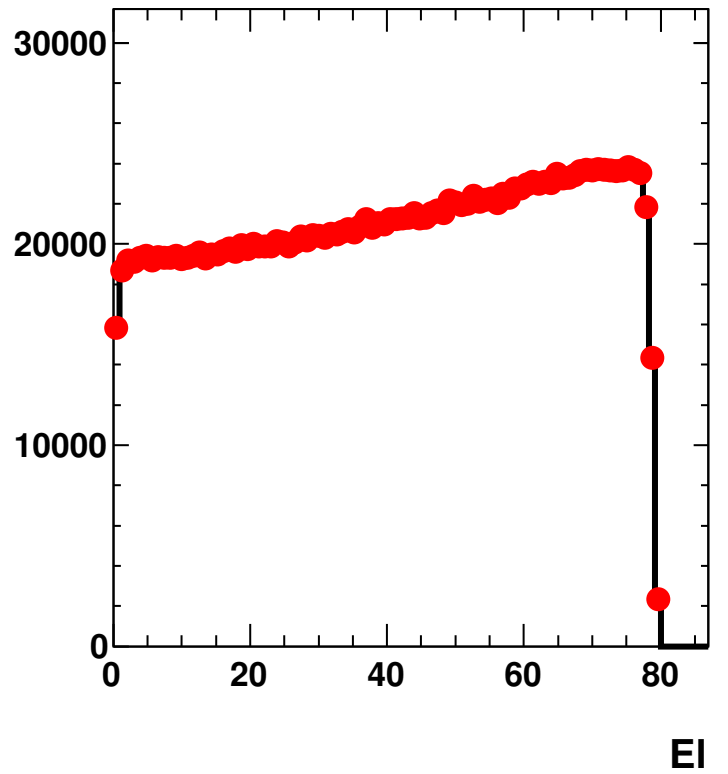
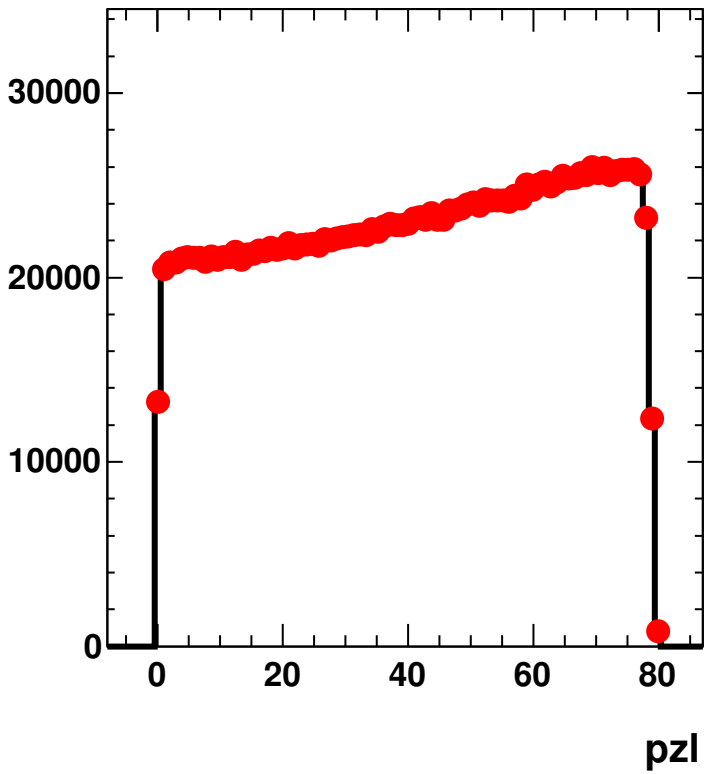
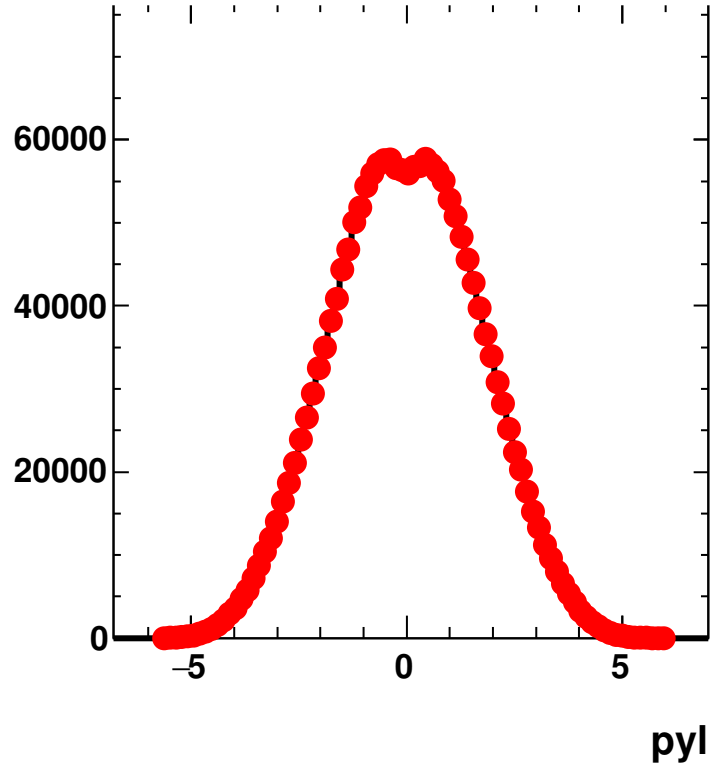
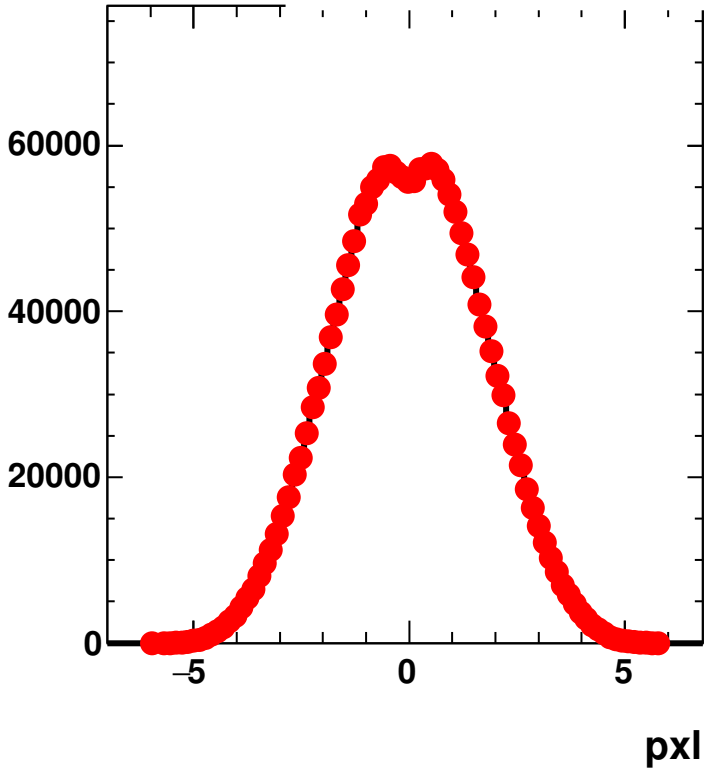
Final state primary lepton 4-p: QEL events



Final state primary lepton 4-p: RES events



Final state primary lepton 4-p: All DIS events



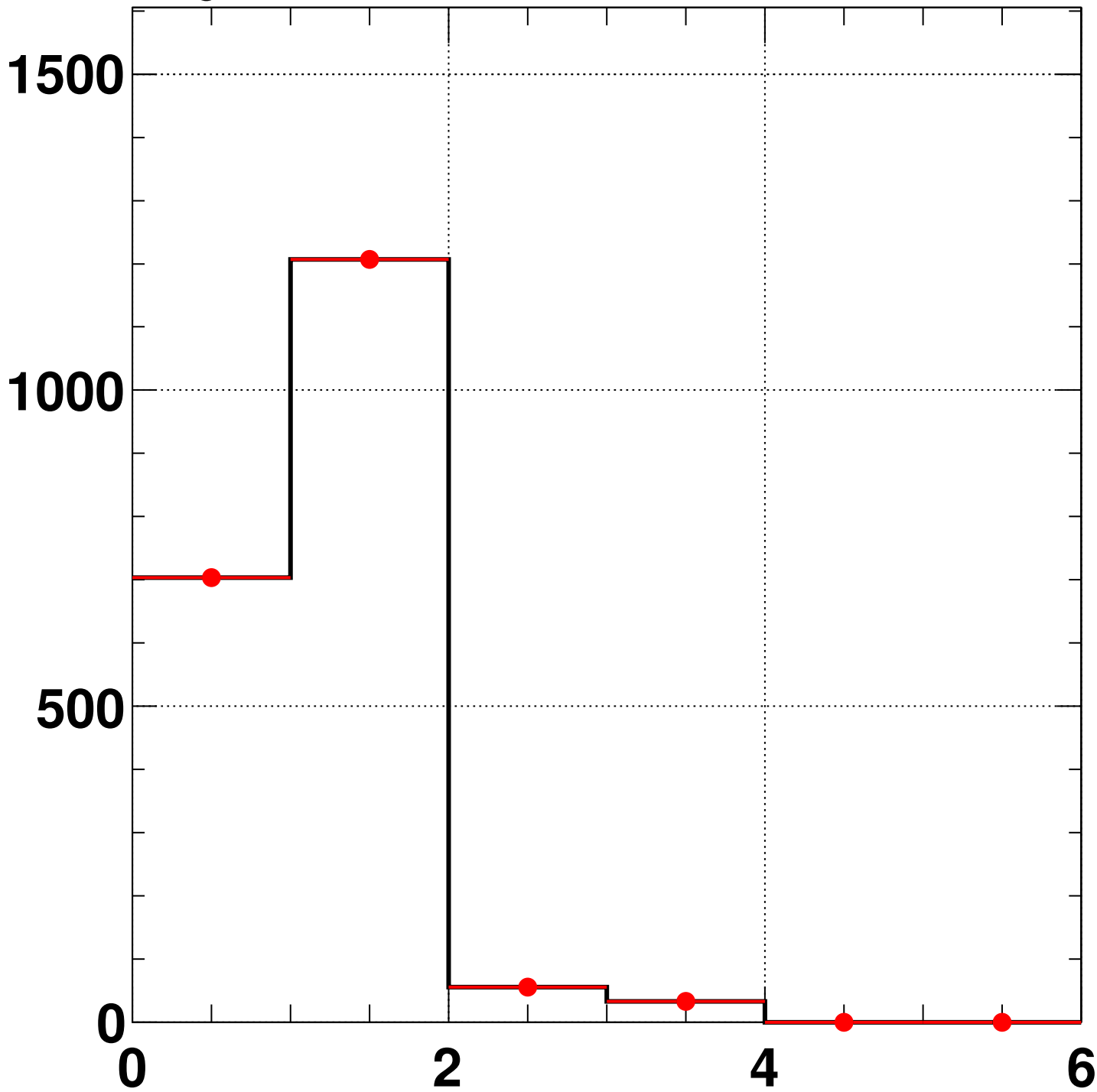
**Final State Hadronic System
Multiplicities and 4-Momenta**

Note:

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

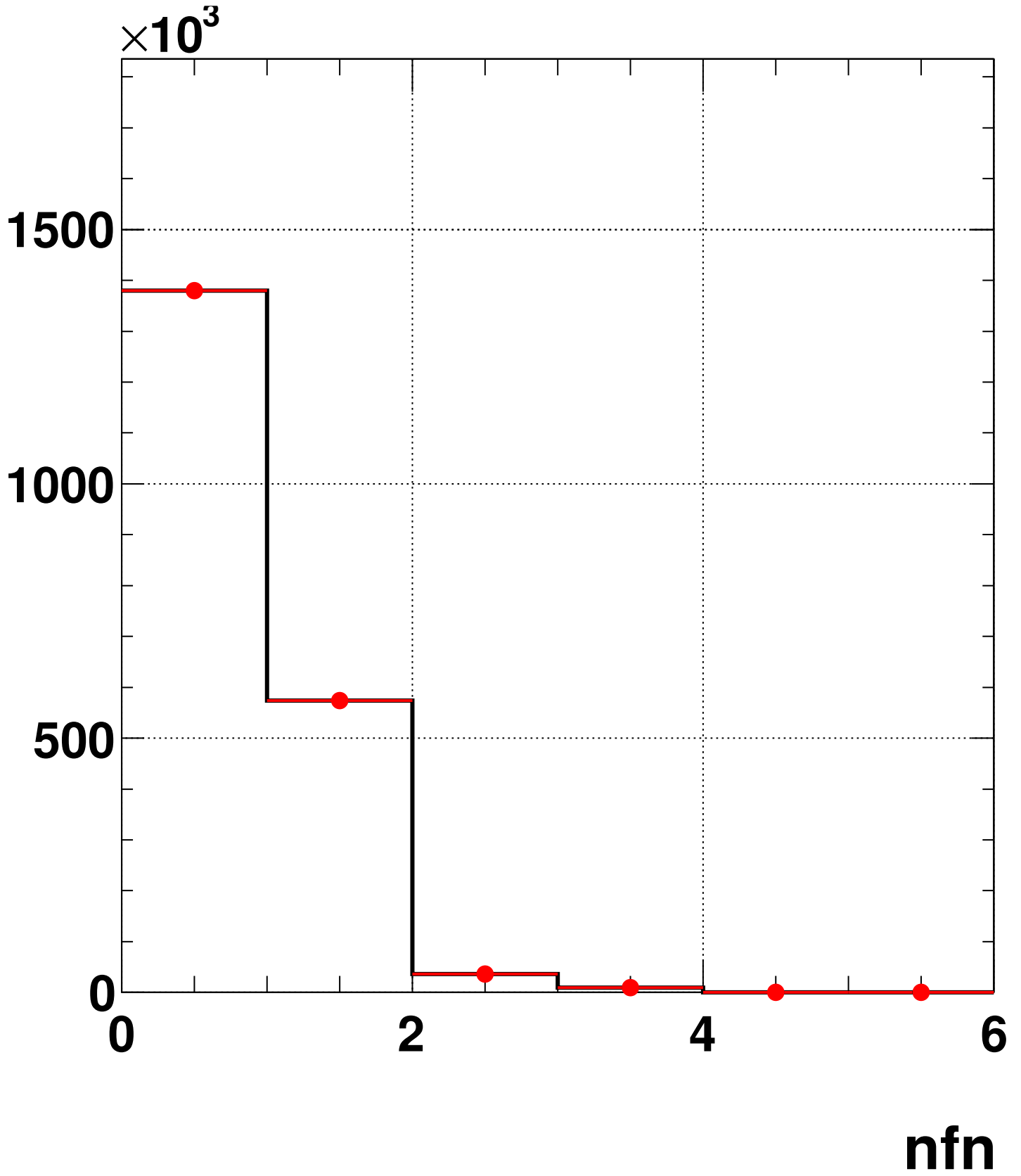
Number of final state protons

$\times 10^3$

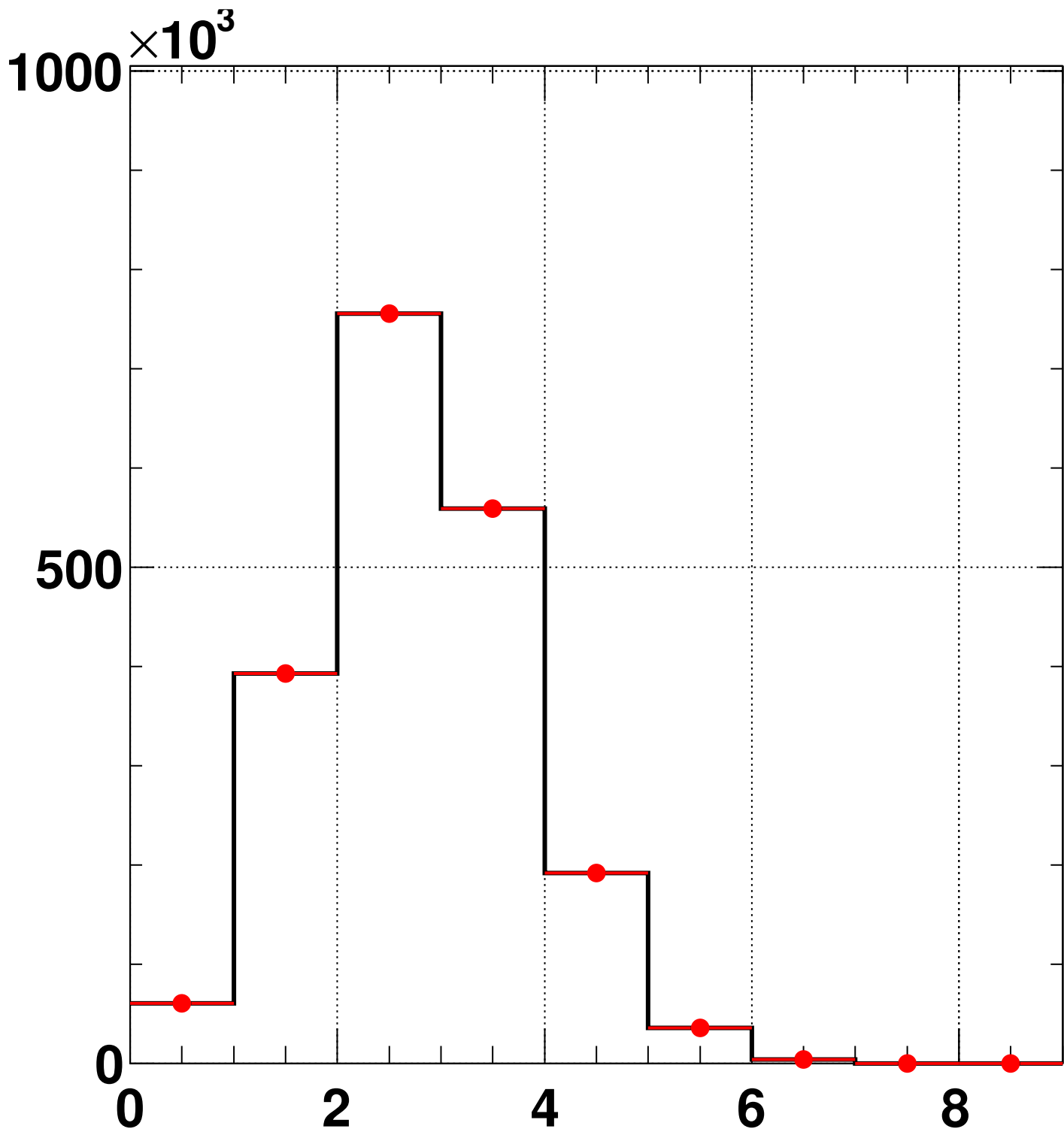


nfp

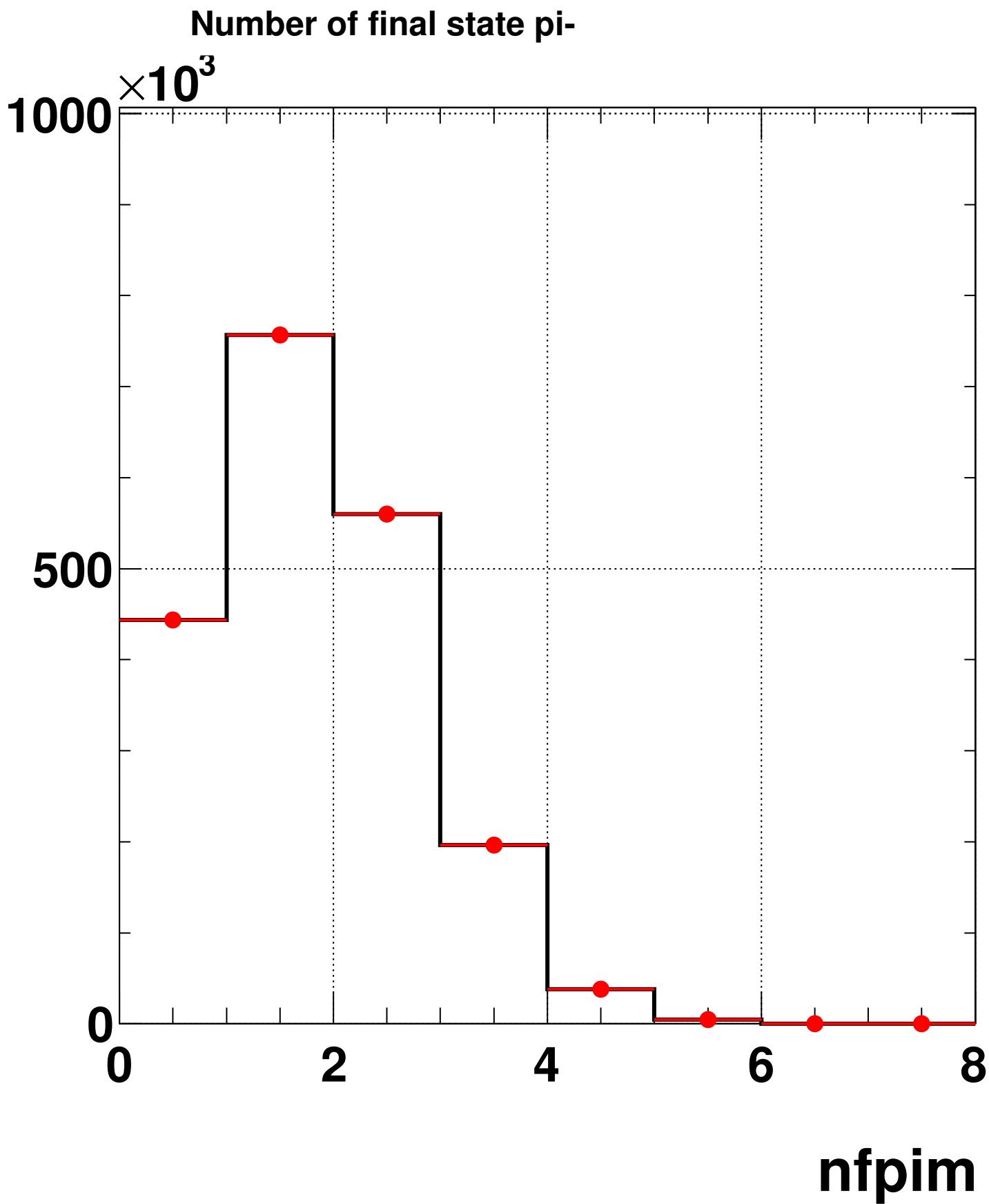
Number of final state neutrons

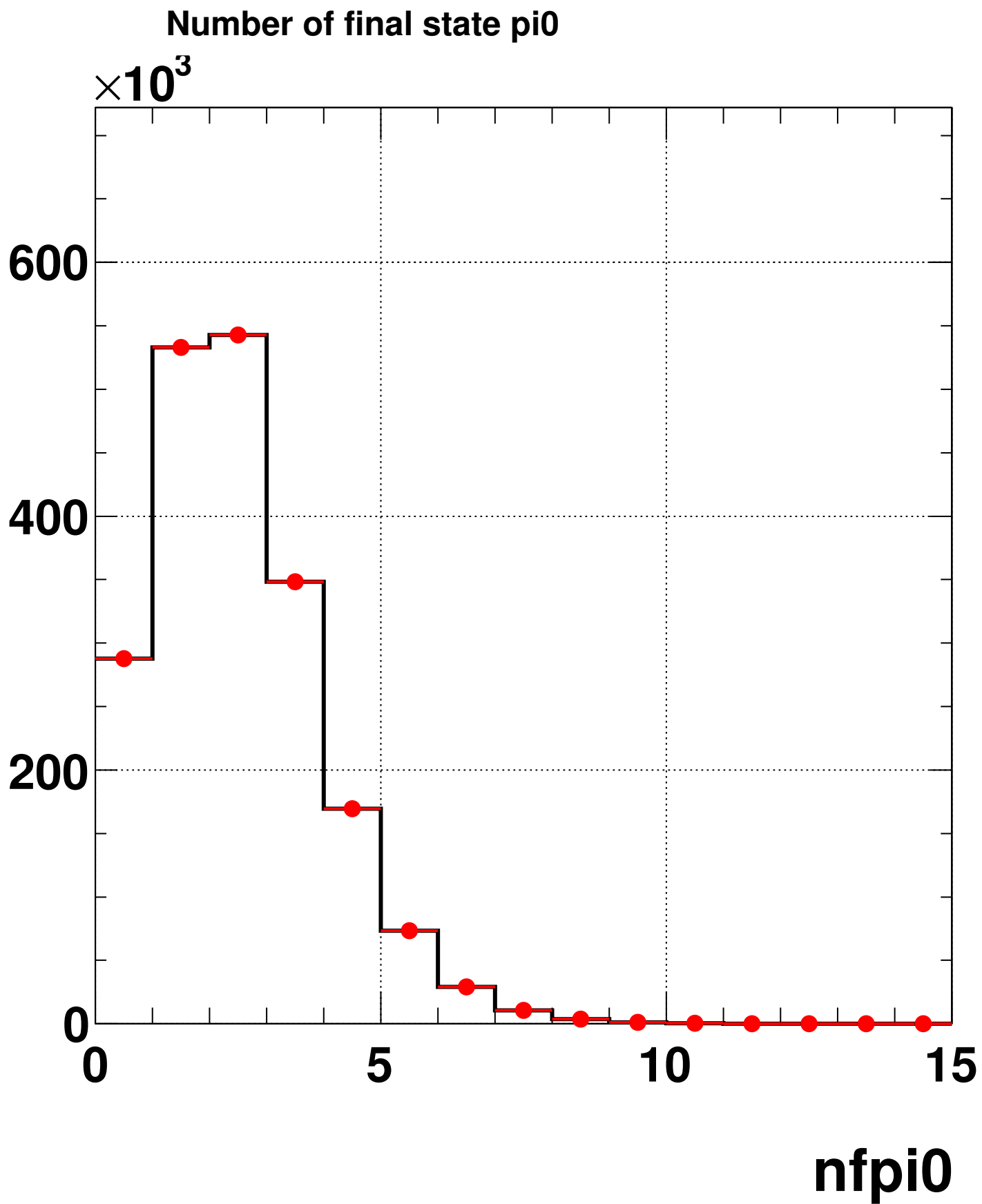


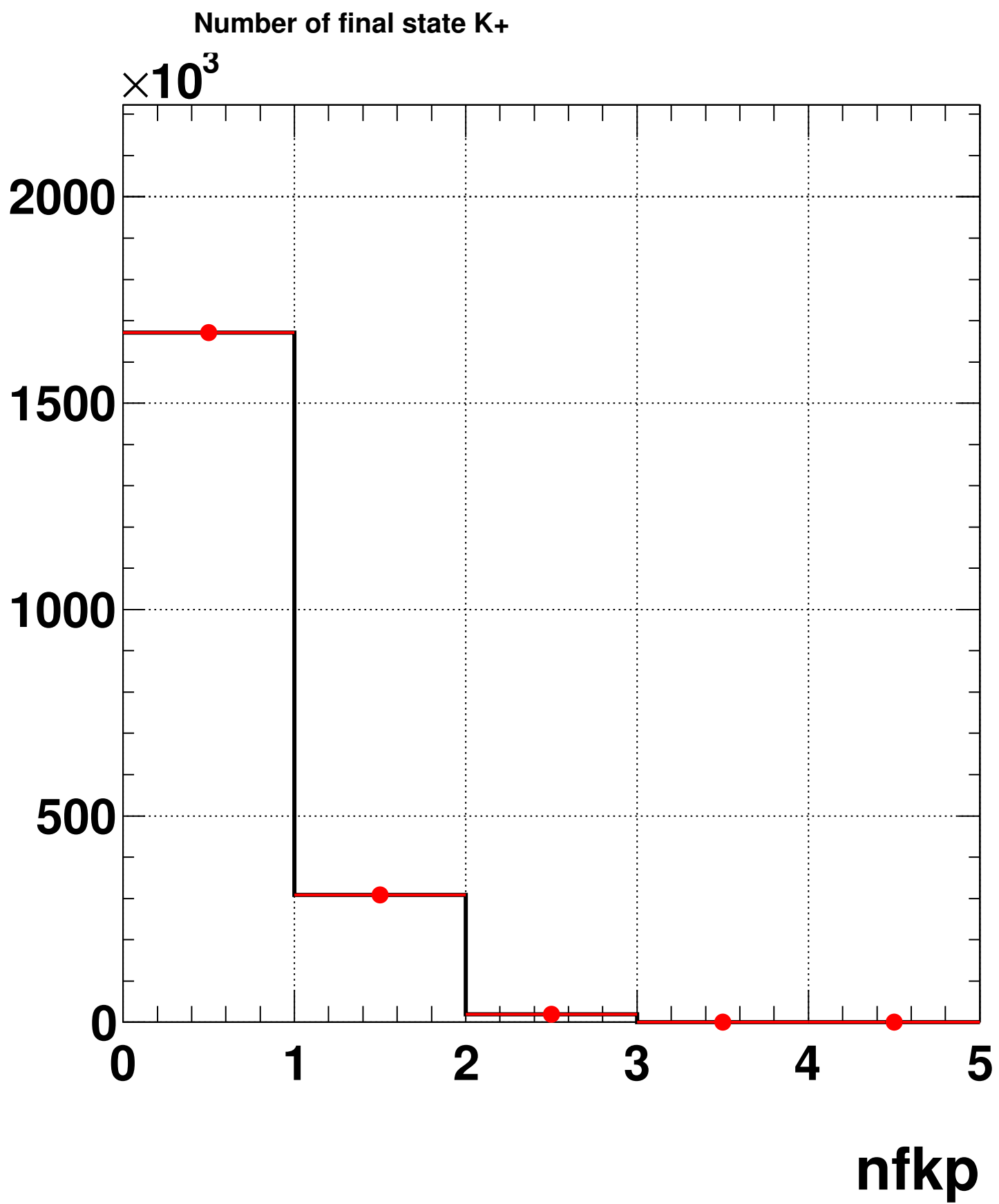
Number of final state pi+

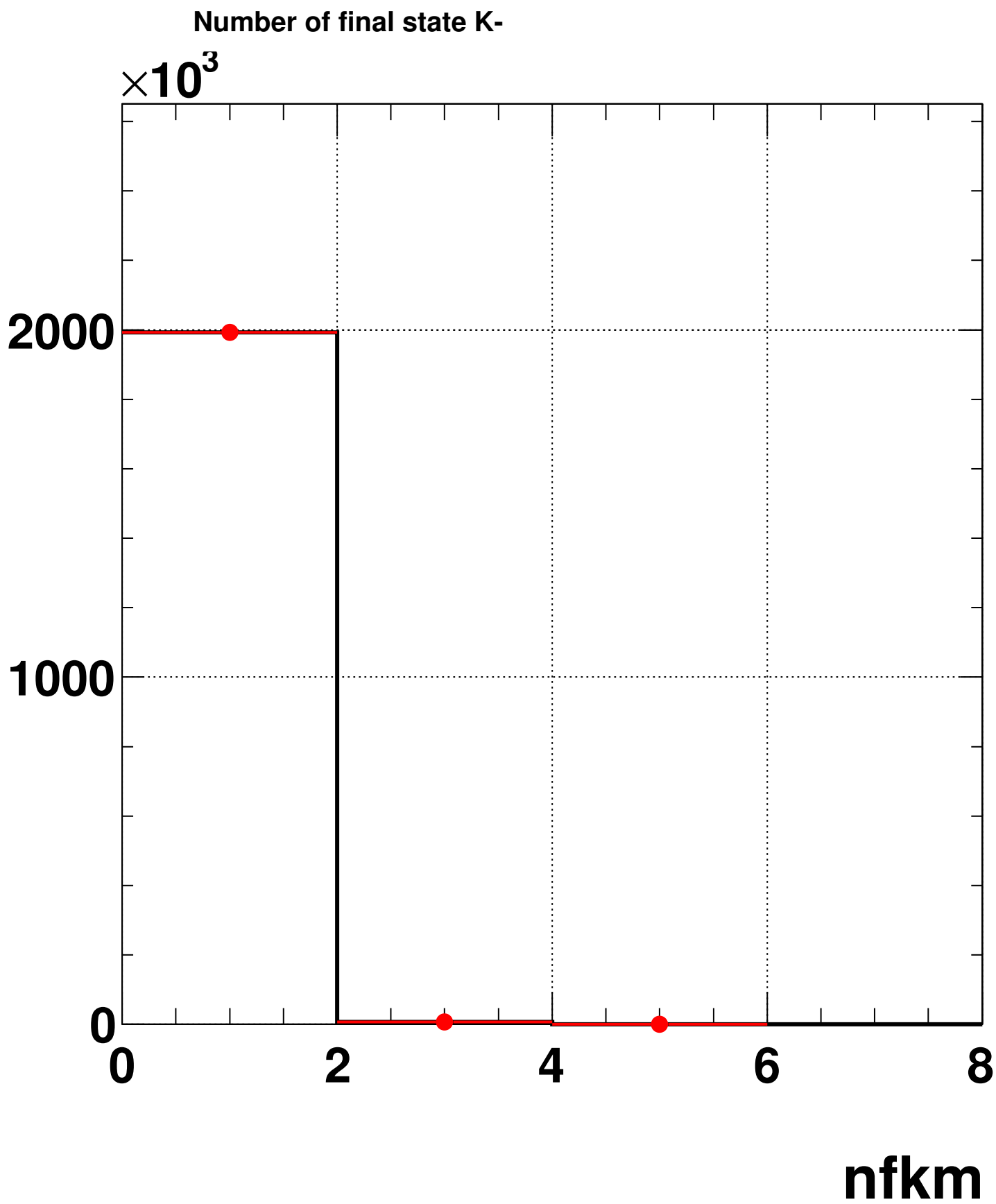


nfpip



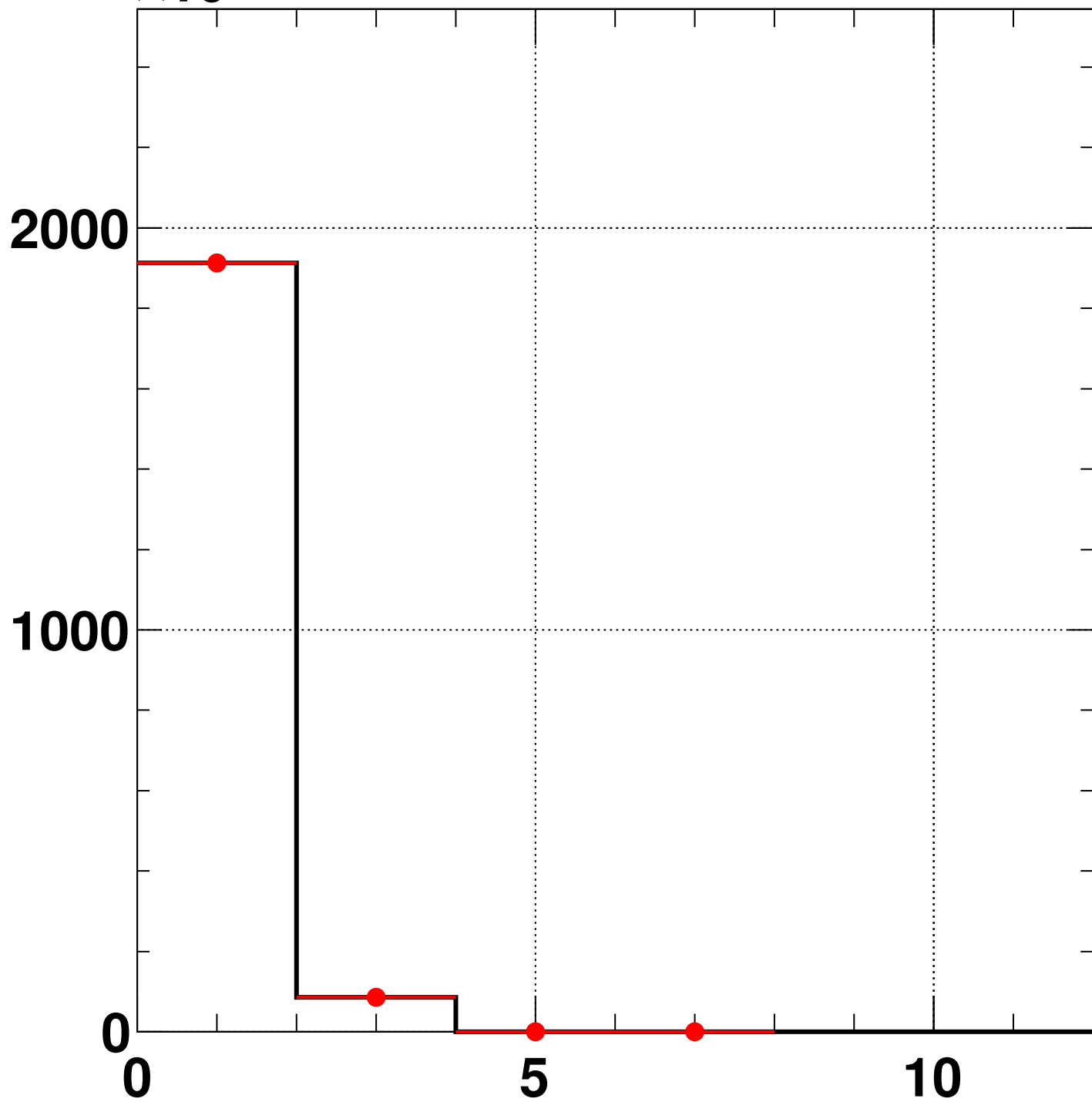






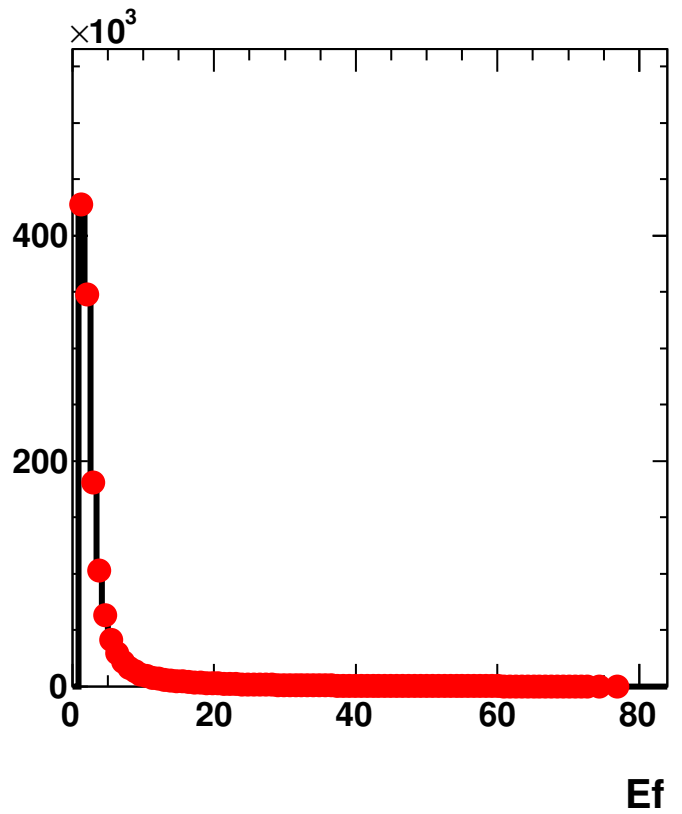
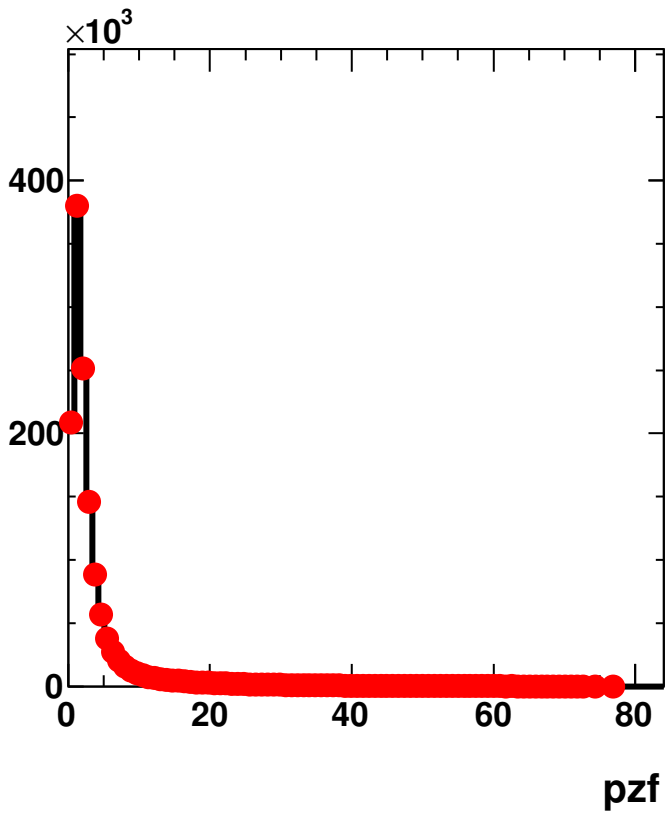
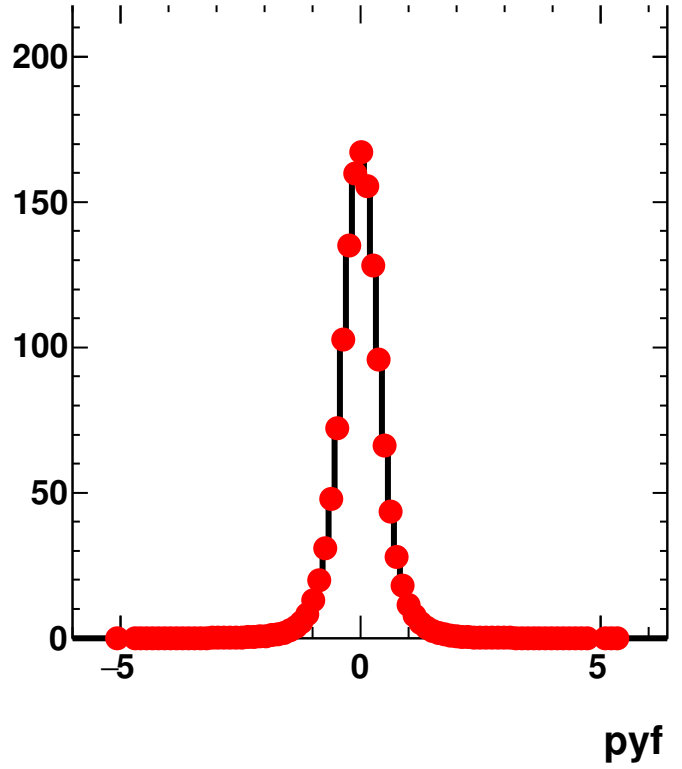
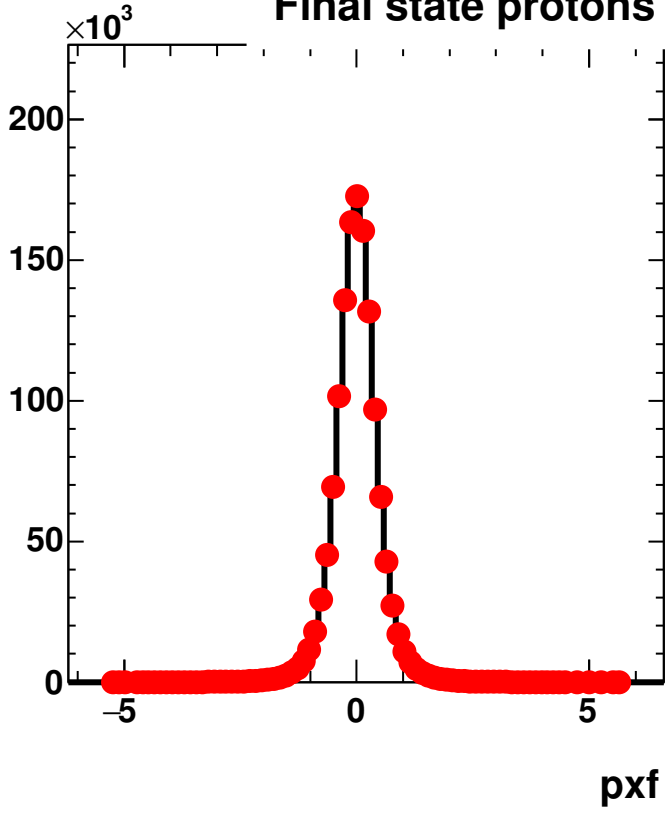
Number of final state K0

$\times 10^3$

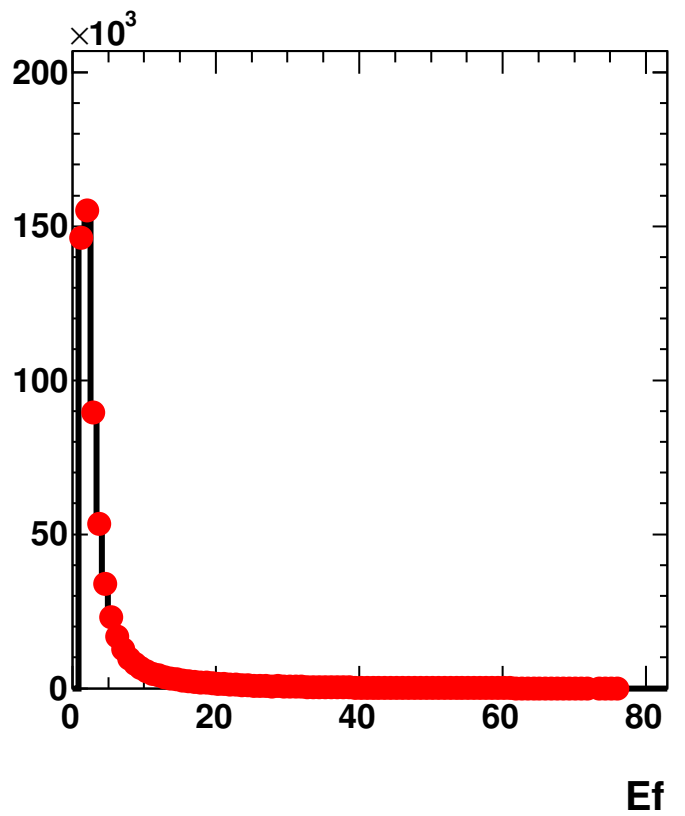
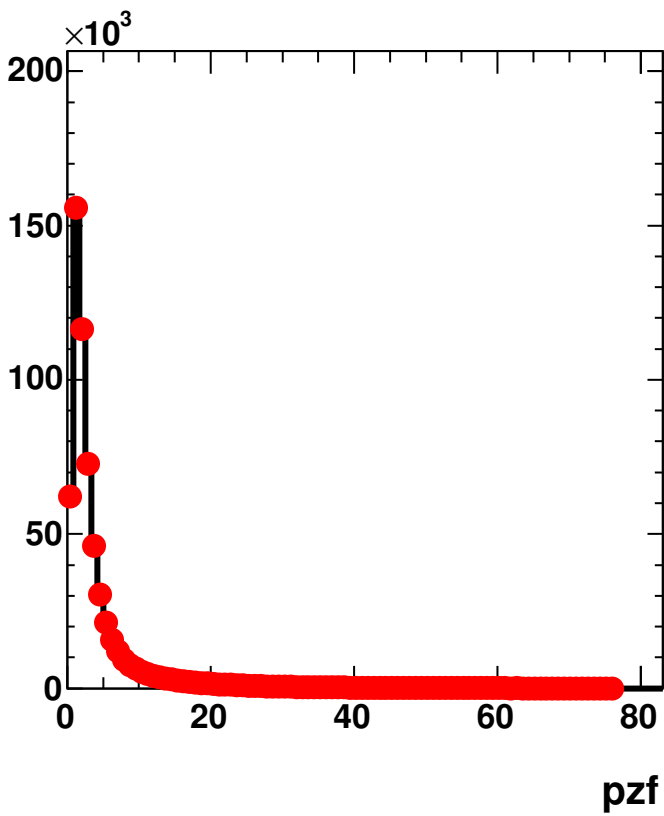
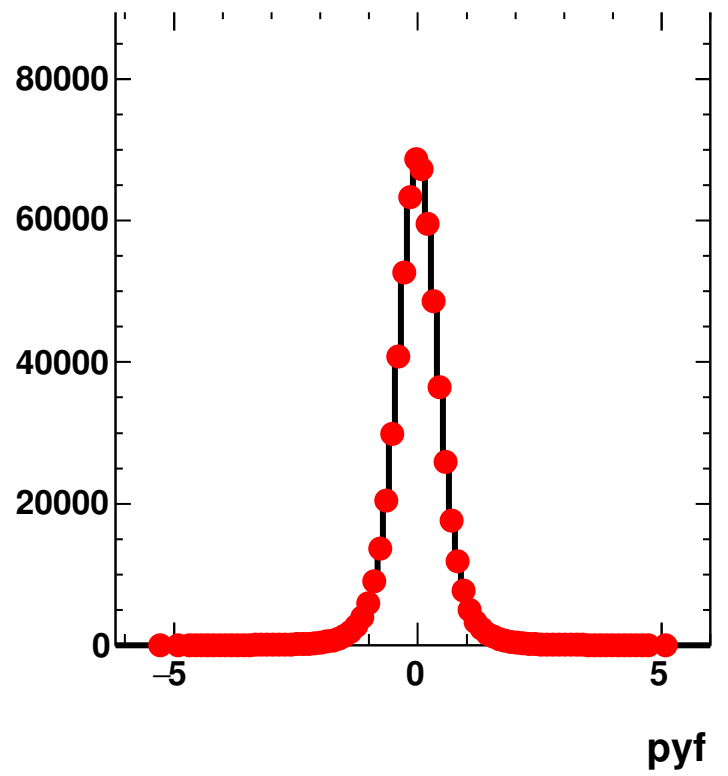
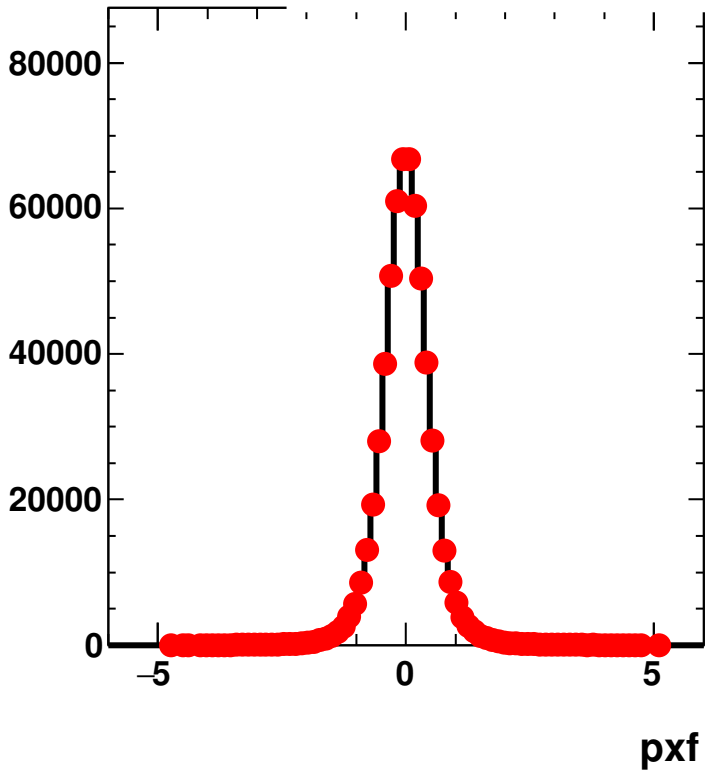


nfk0

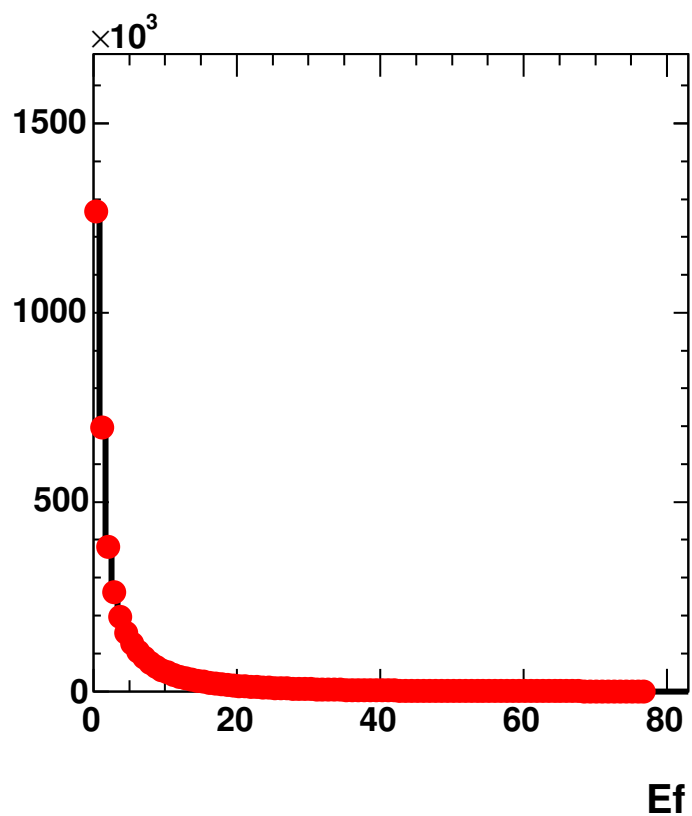
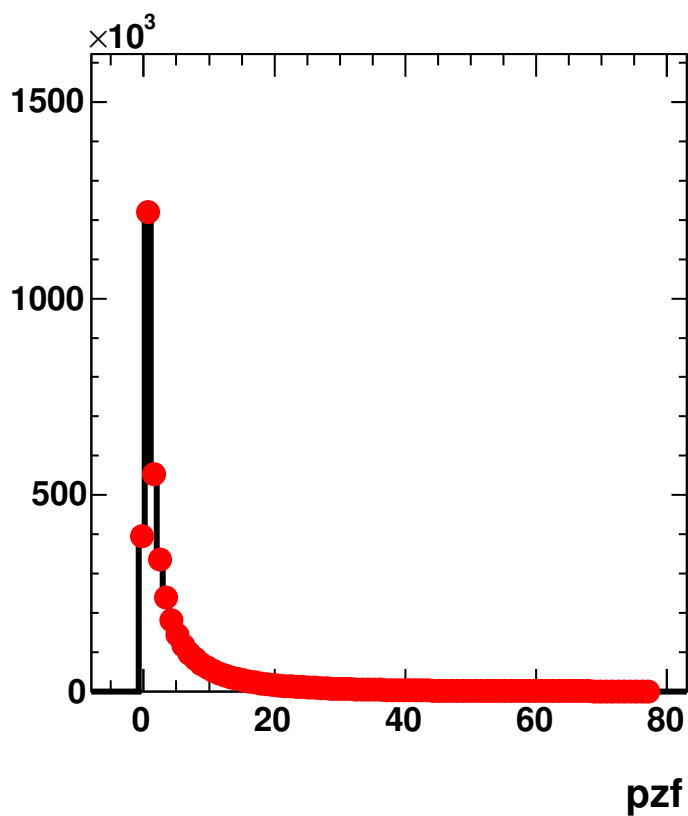
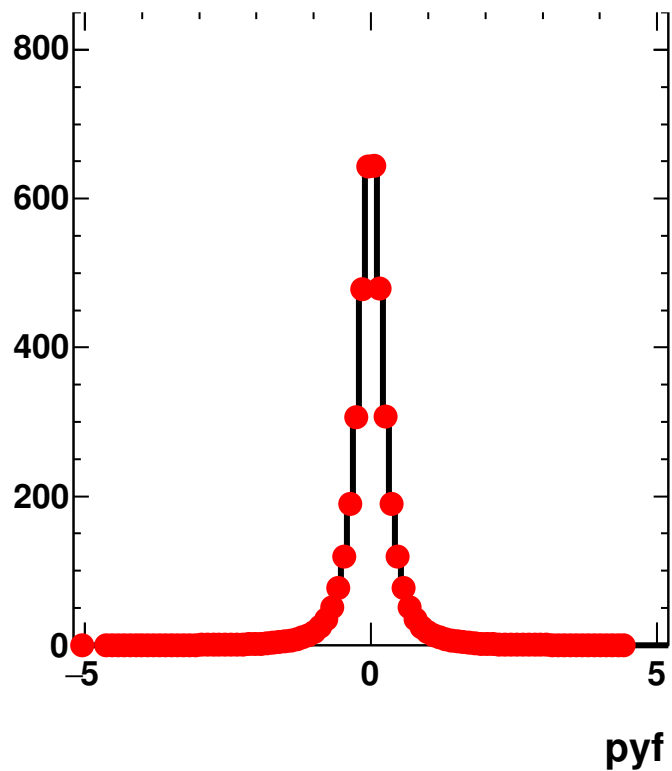
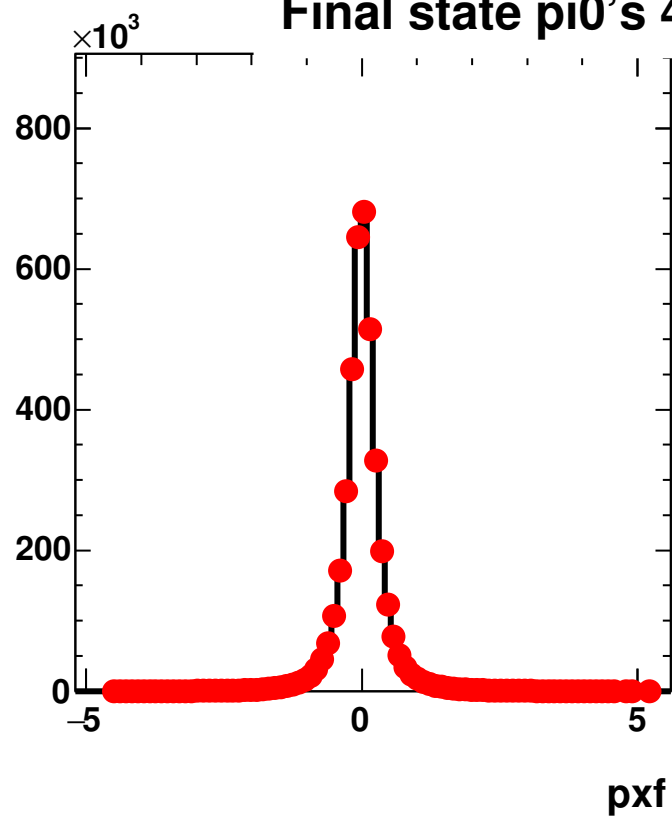
Final state protons 4-momentum



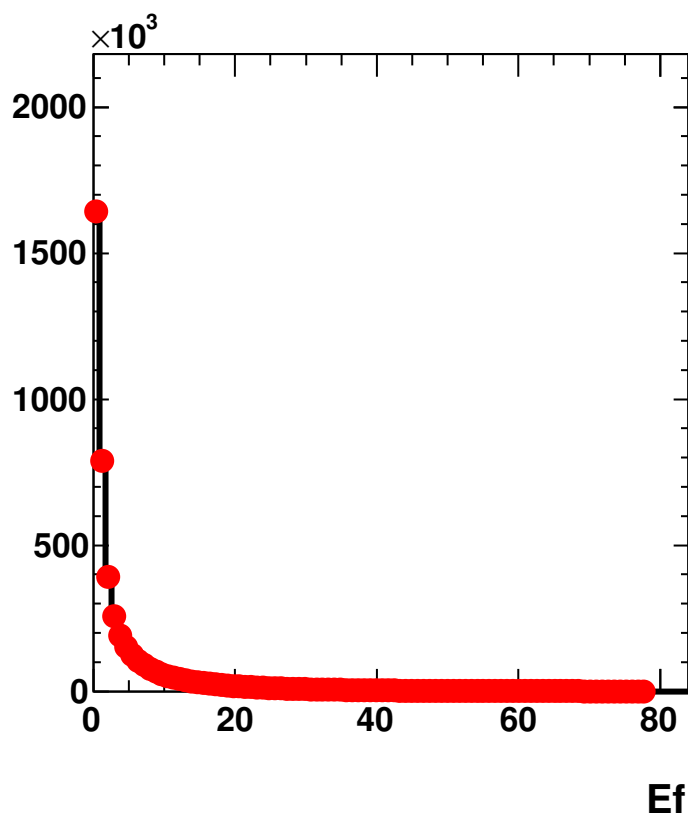
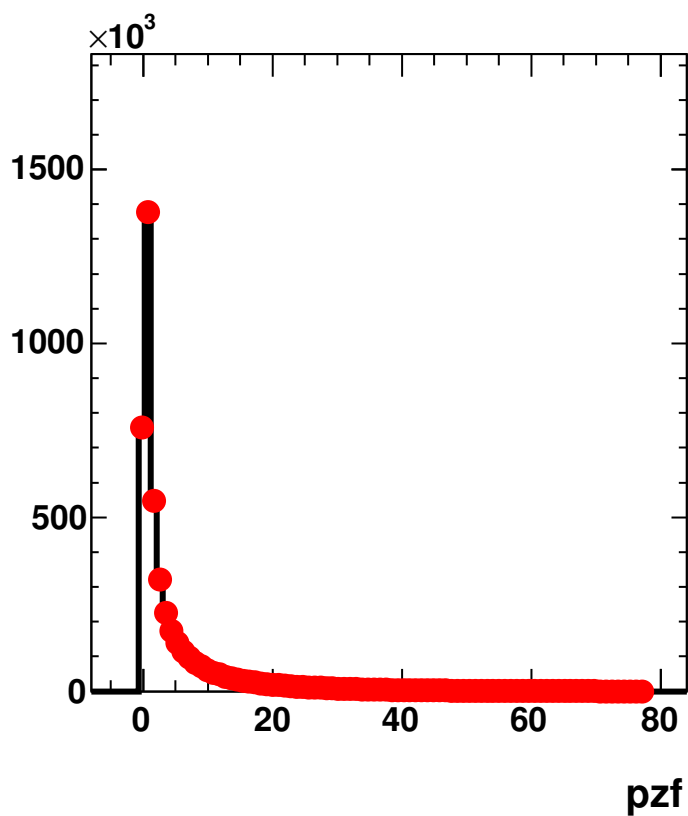
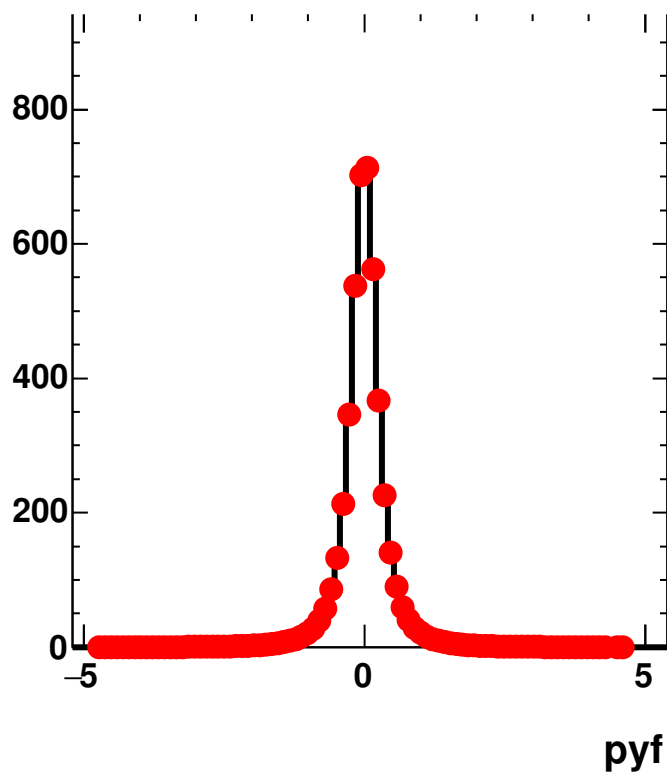
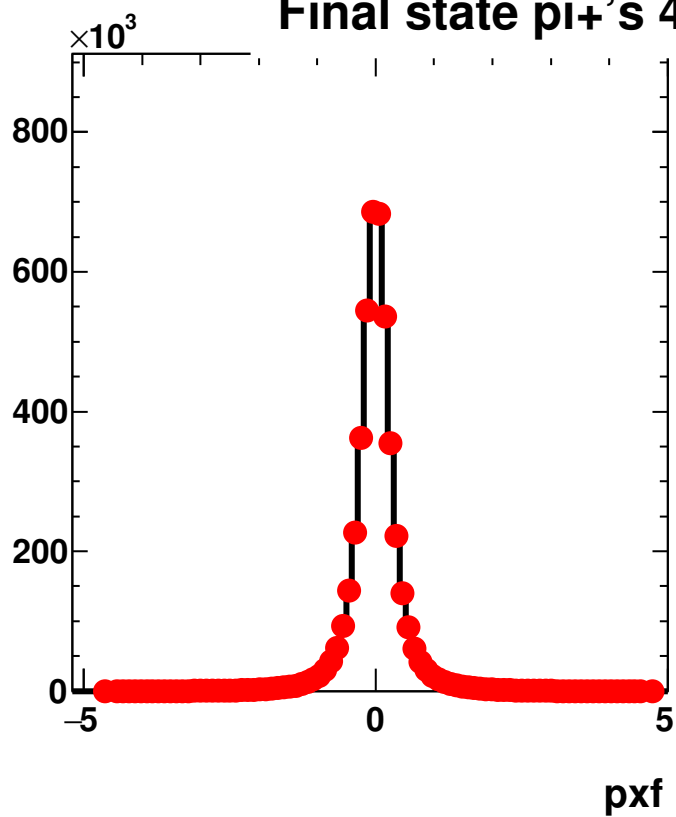
Final state neutrons 4-momentum



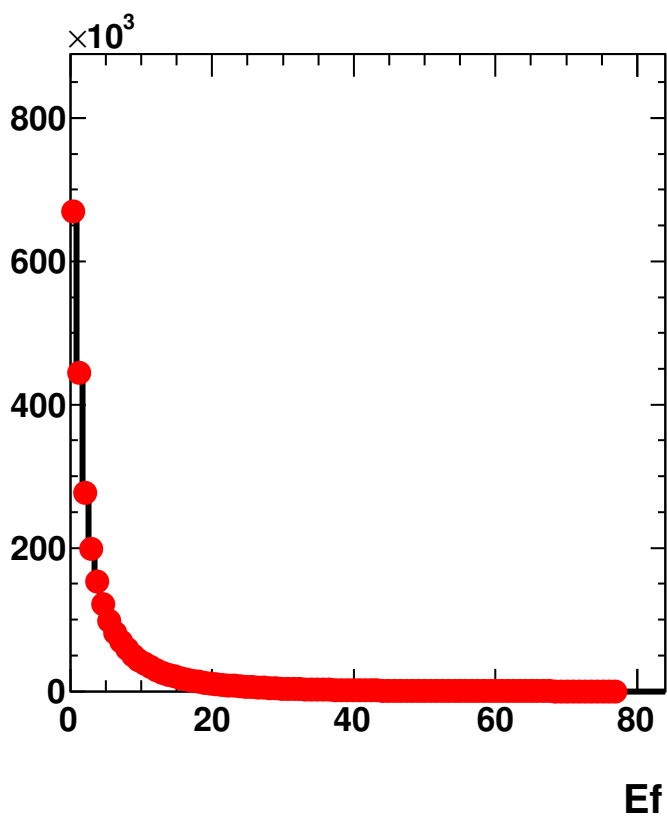
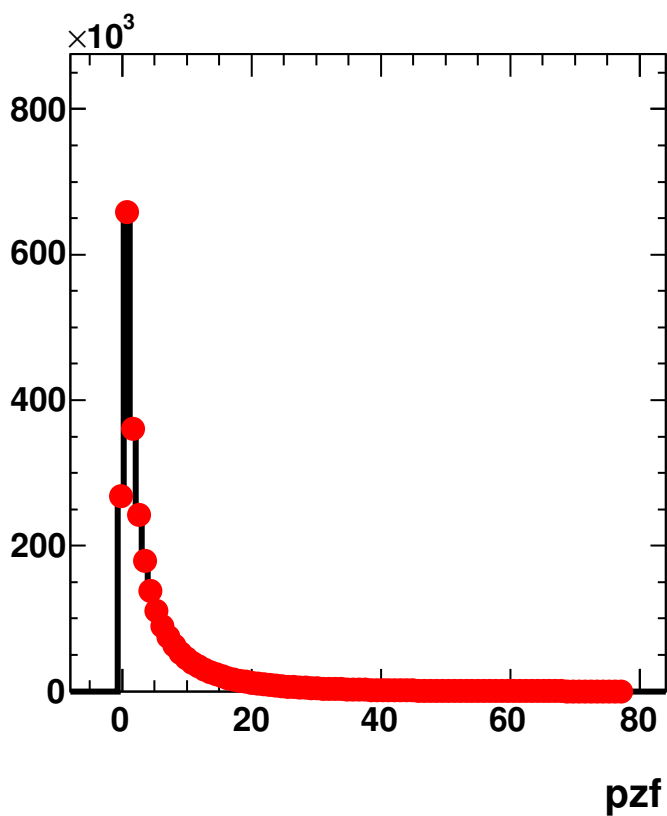
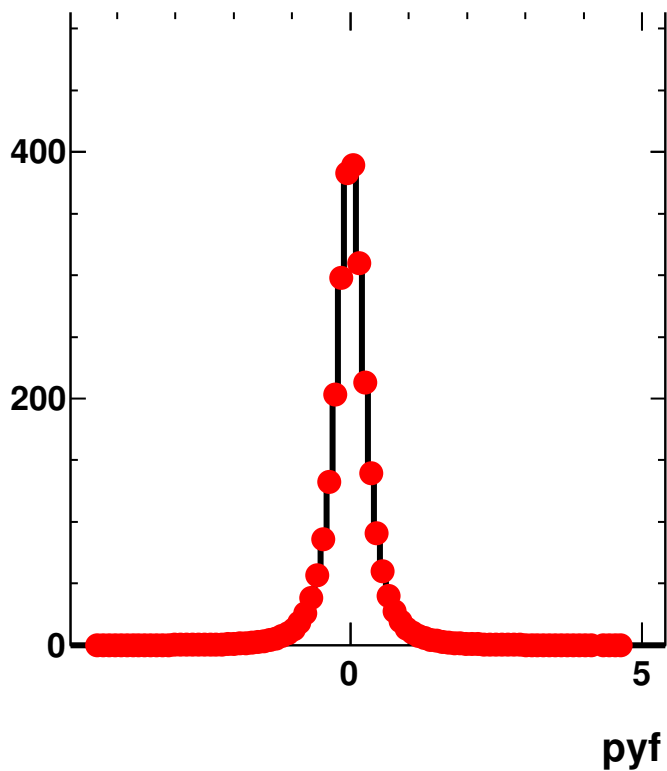
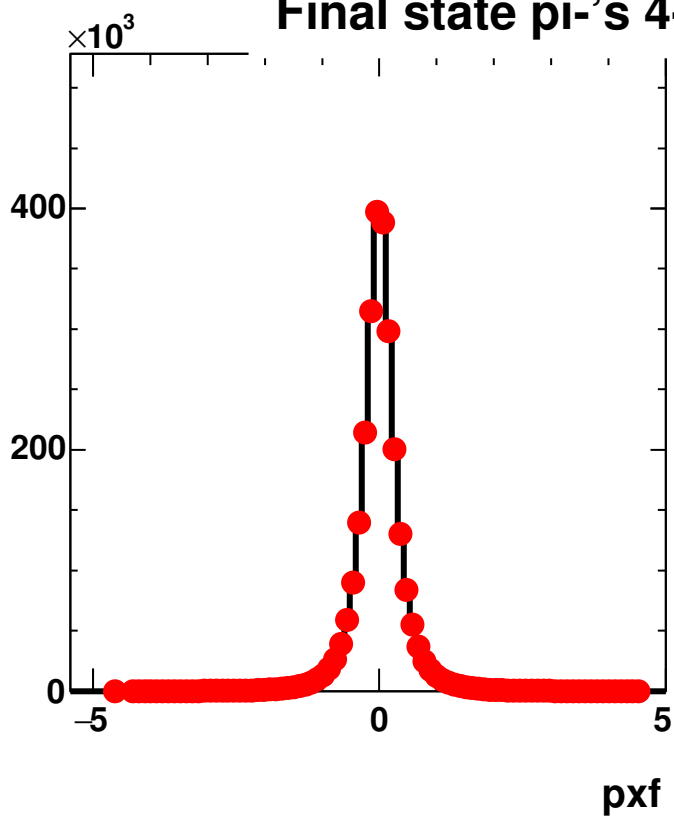
Final state pi0's 4-momentum



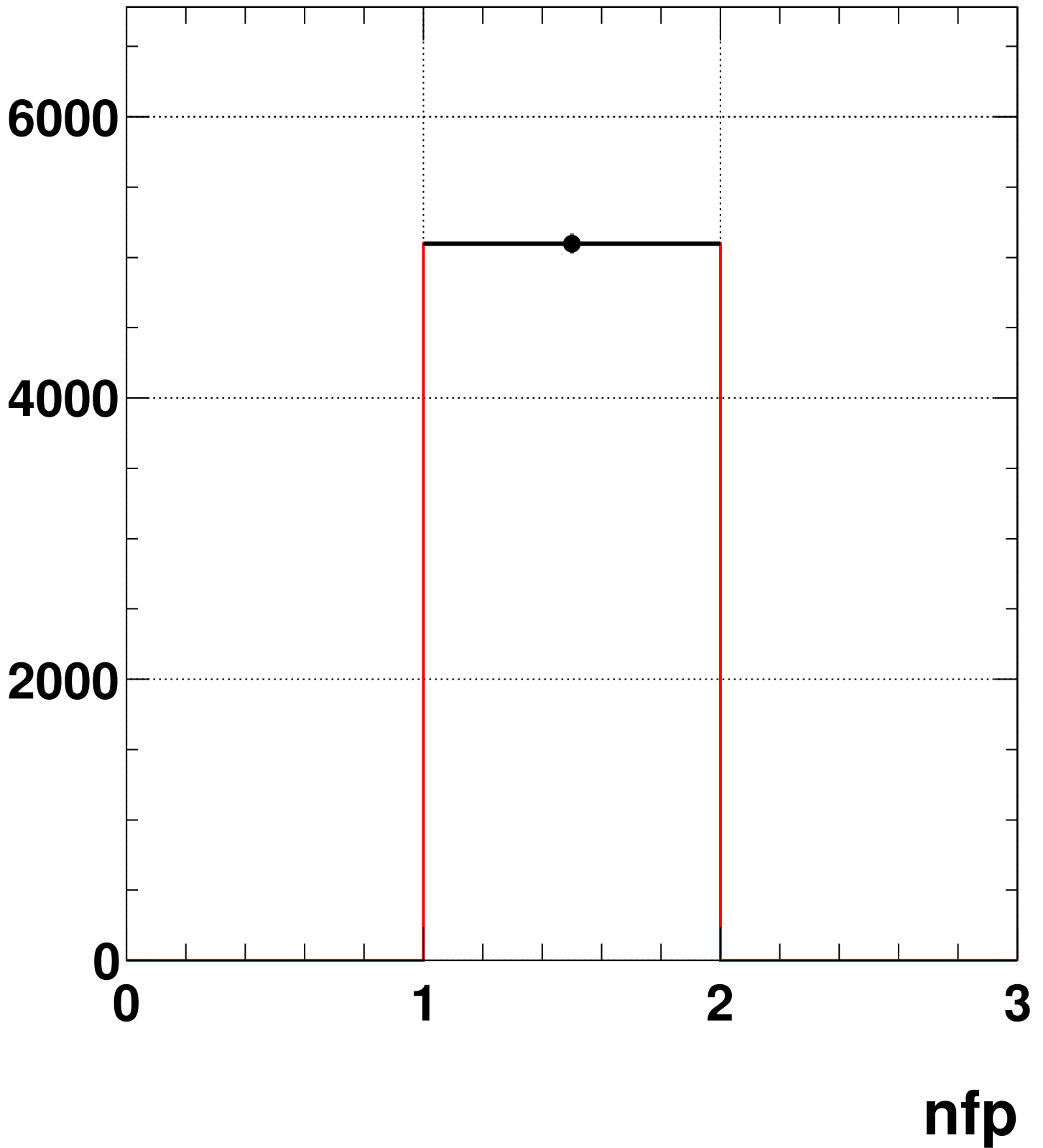
Final state pi+'s 4-momentum



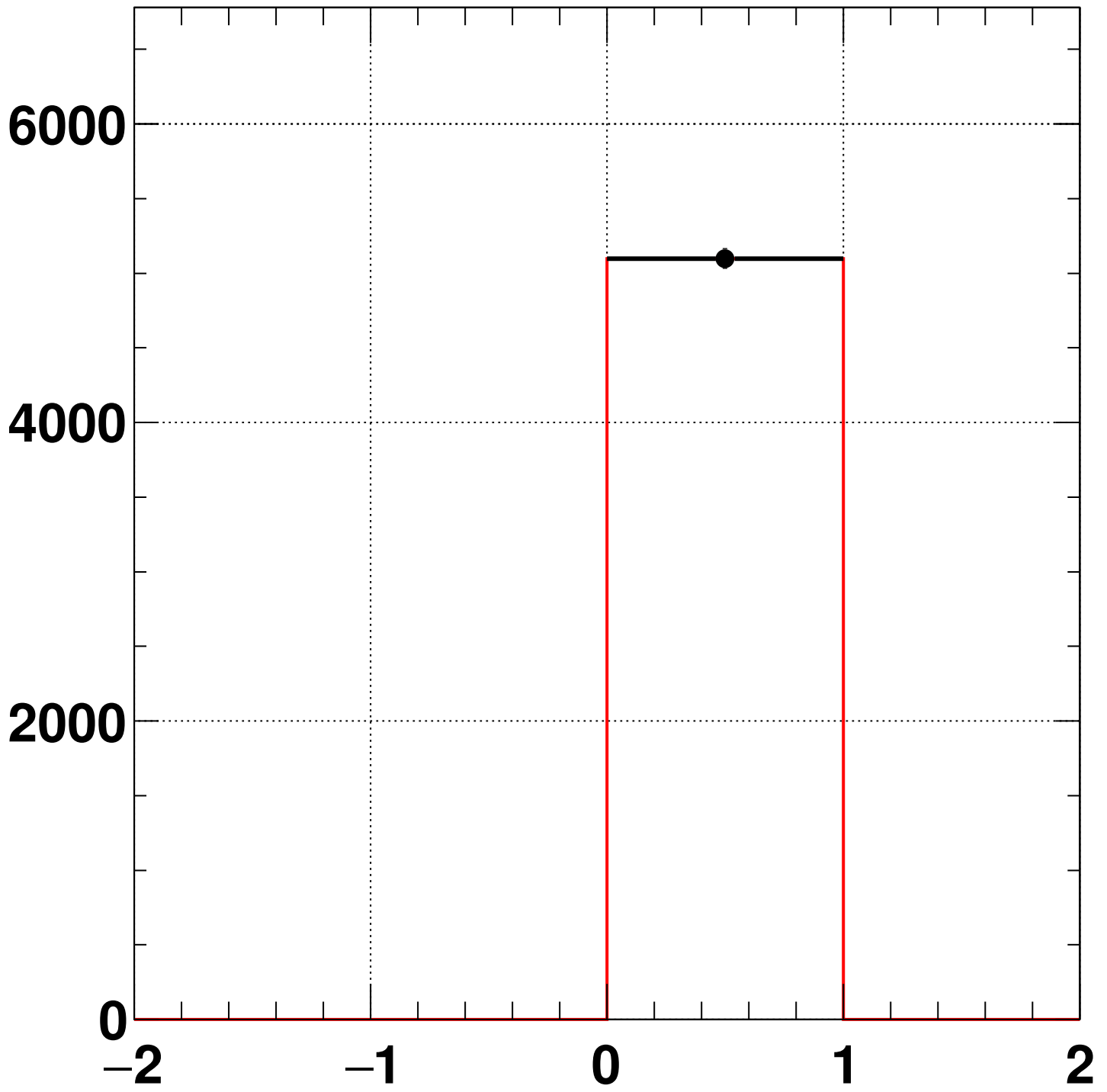
Final state pi-'s 4-momentum



Number of final state protons / QEL only

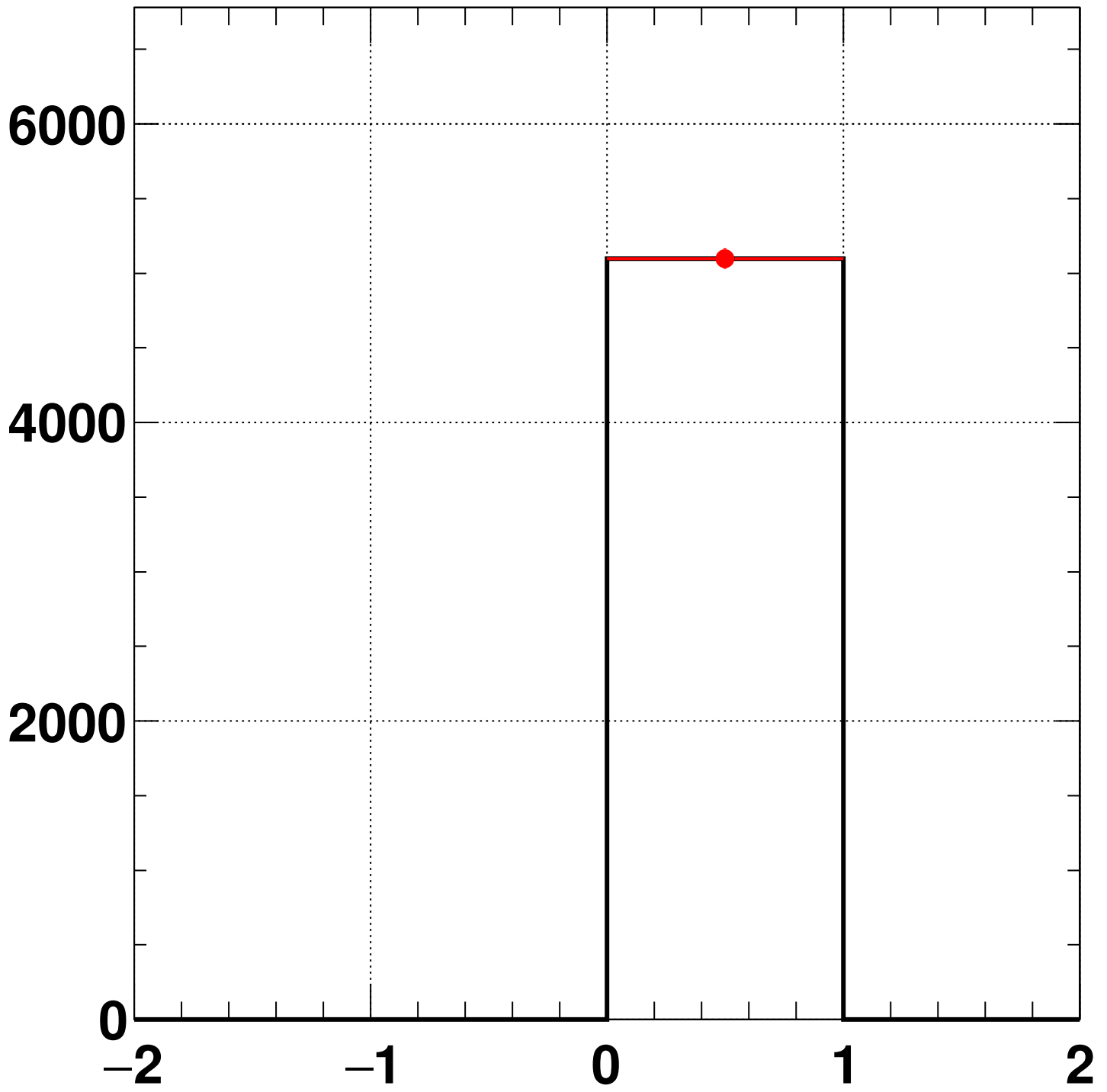


Number of final state neutrons / QEL only



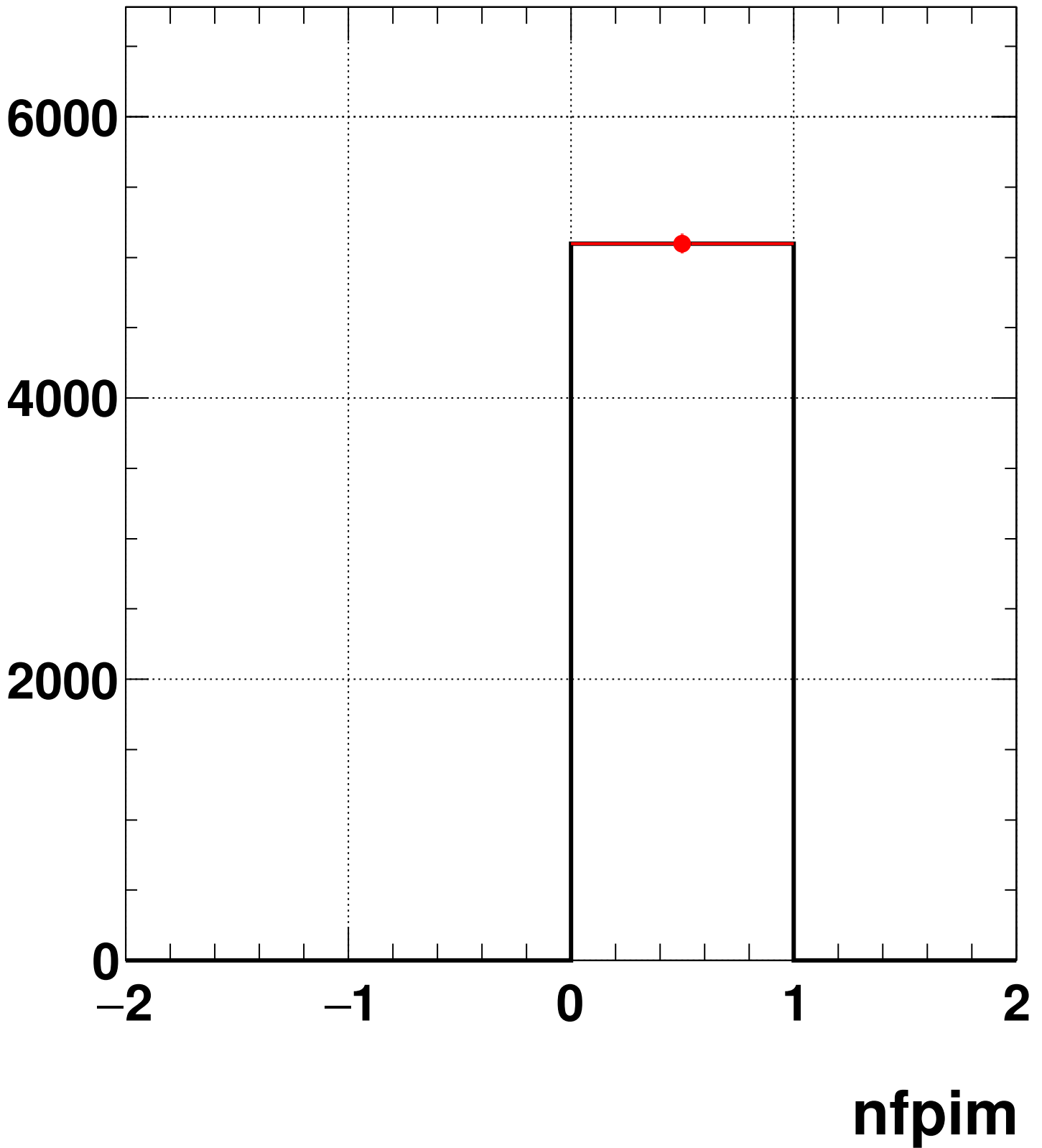
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Number of final state pi+ / QEL only

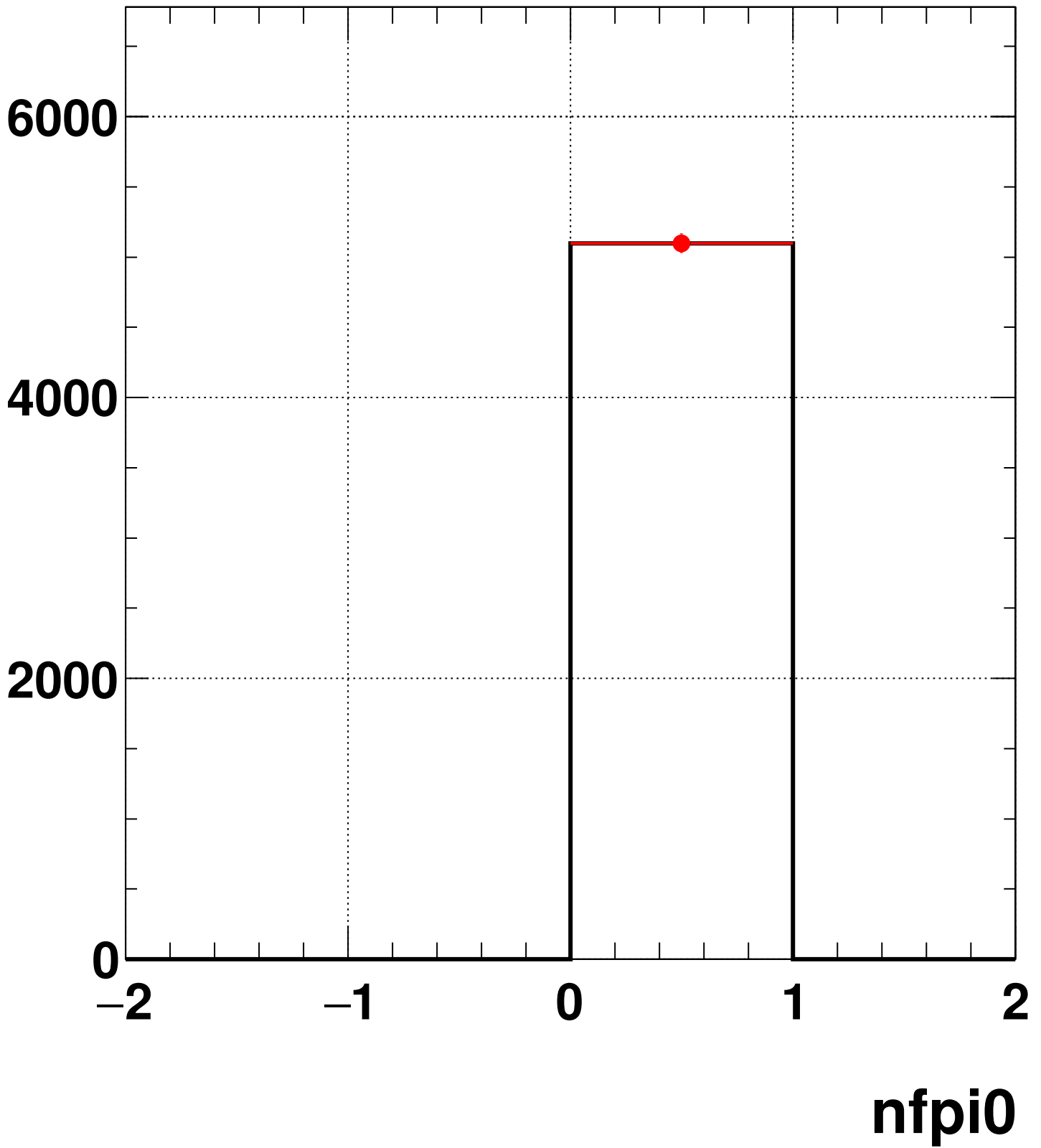


nfpip

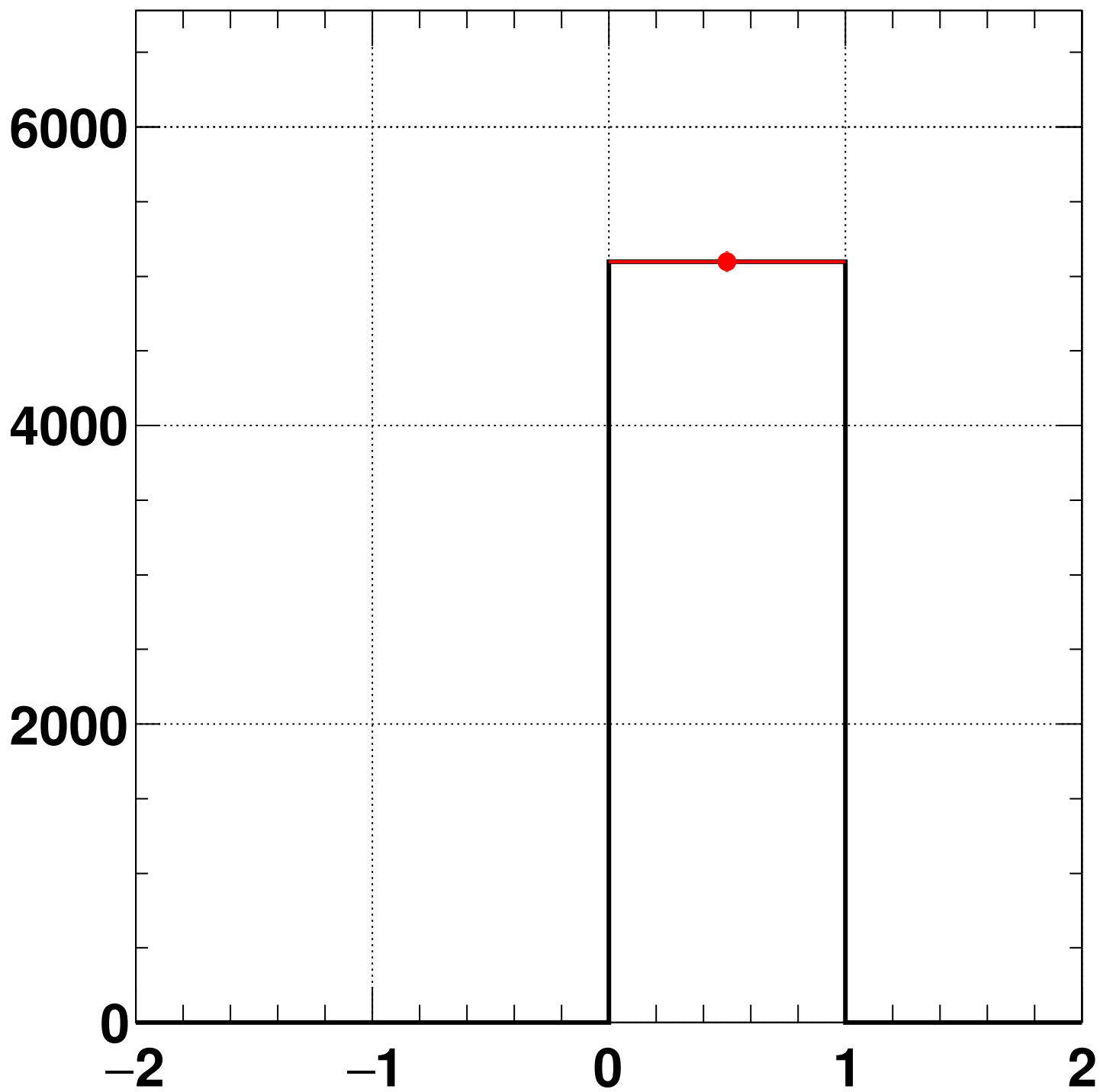
Number of final state pi- / QEL only



Number of final state pi0 / QEL only

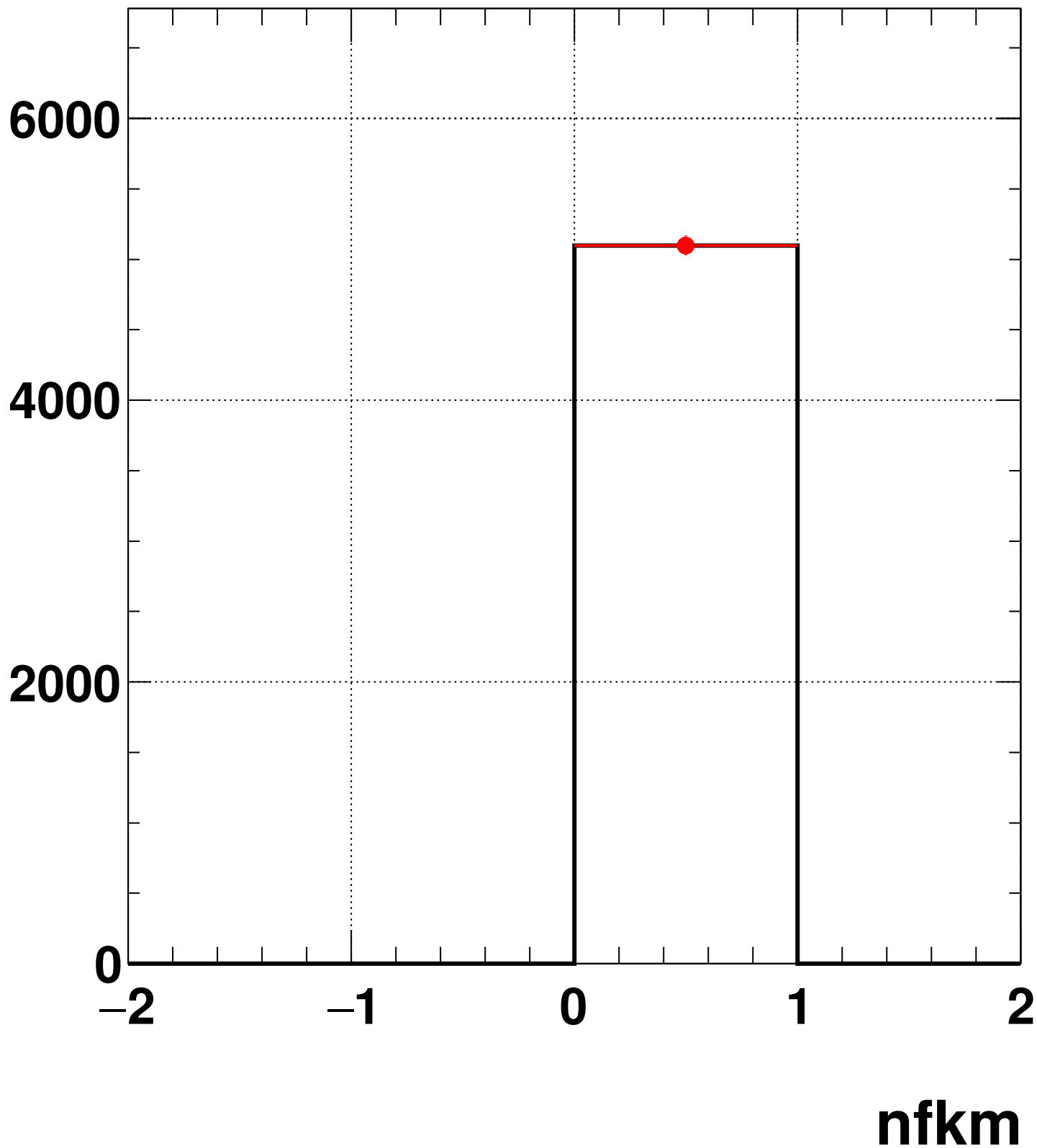


Number of final state K+ / QEL only

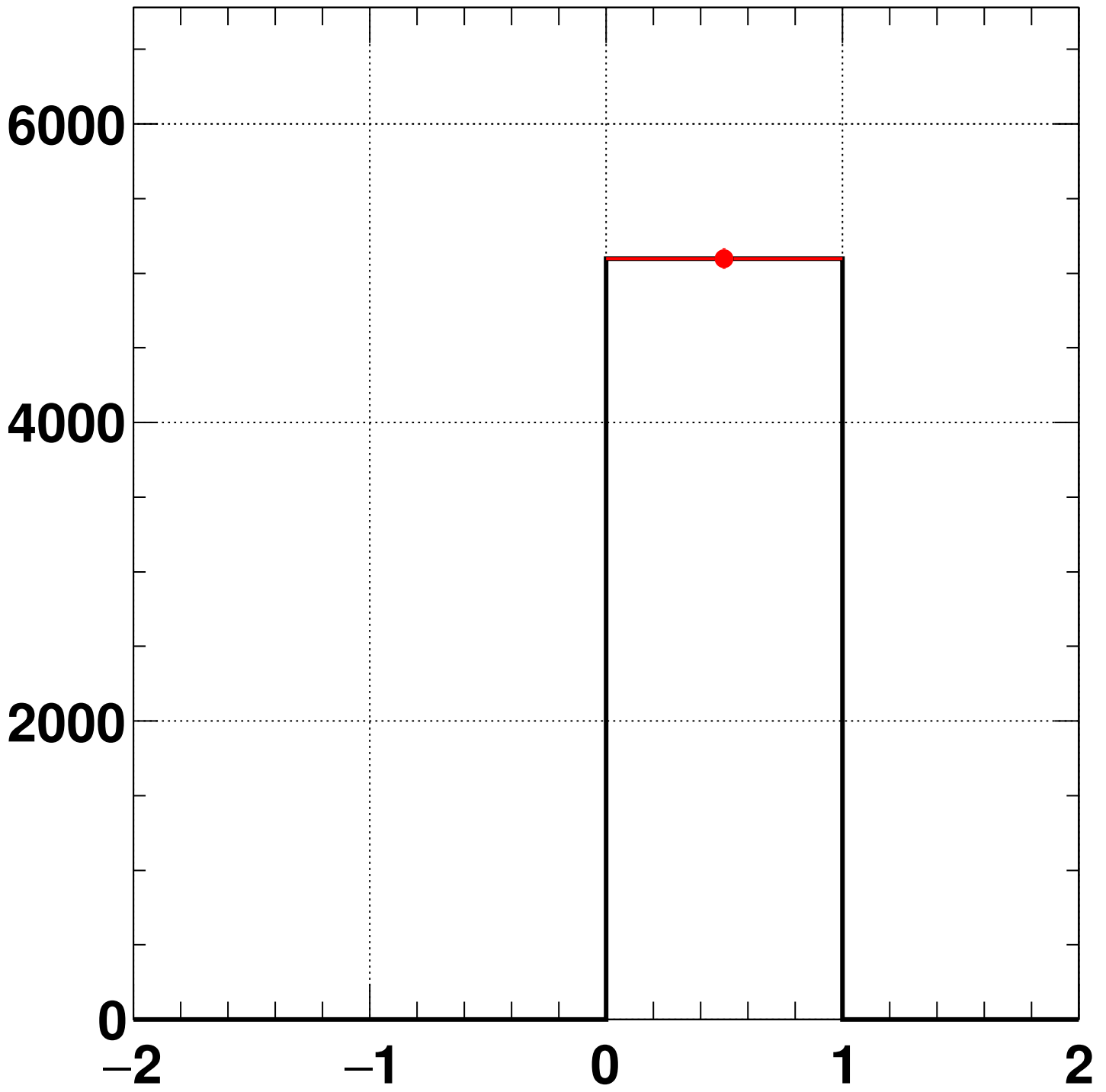


nfkp

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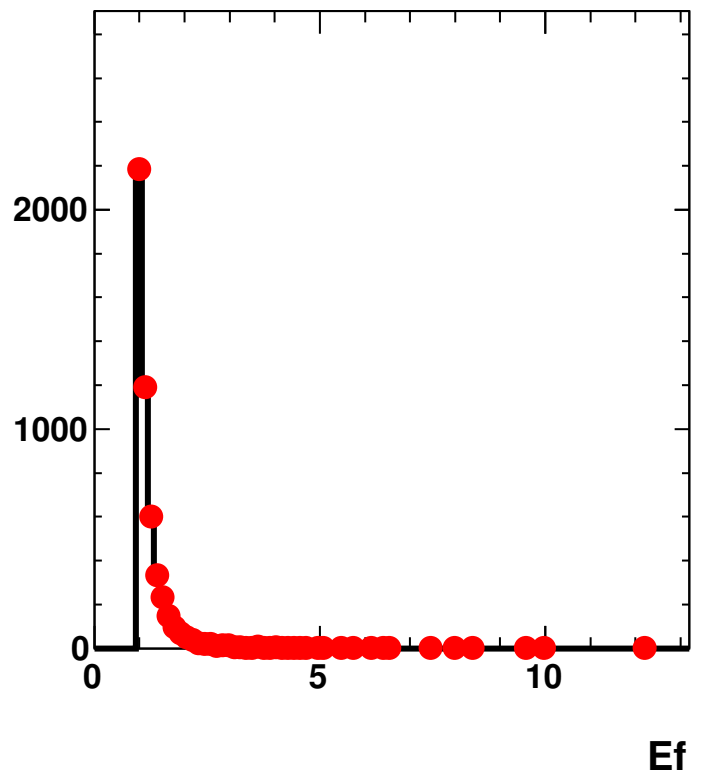
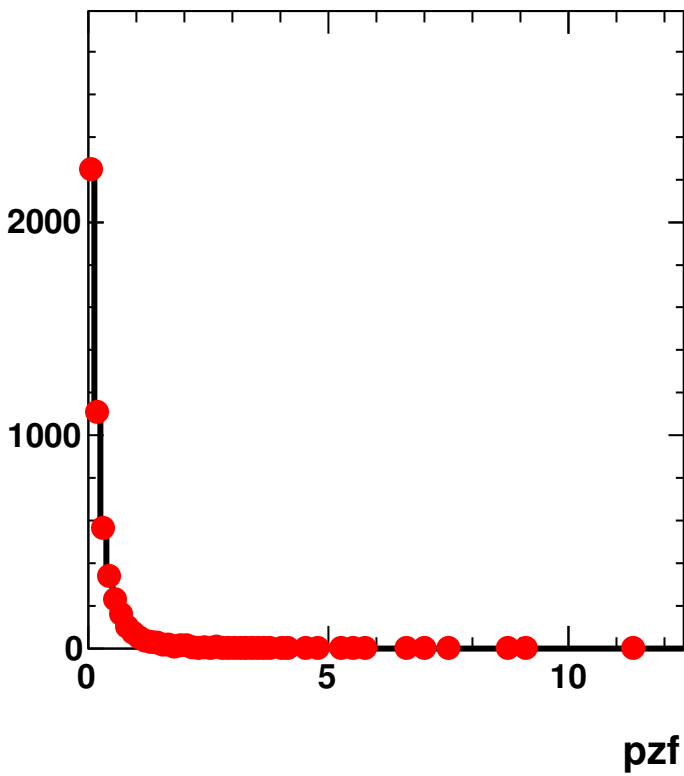
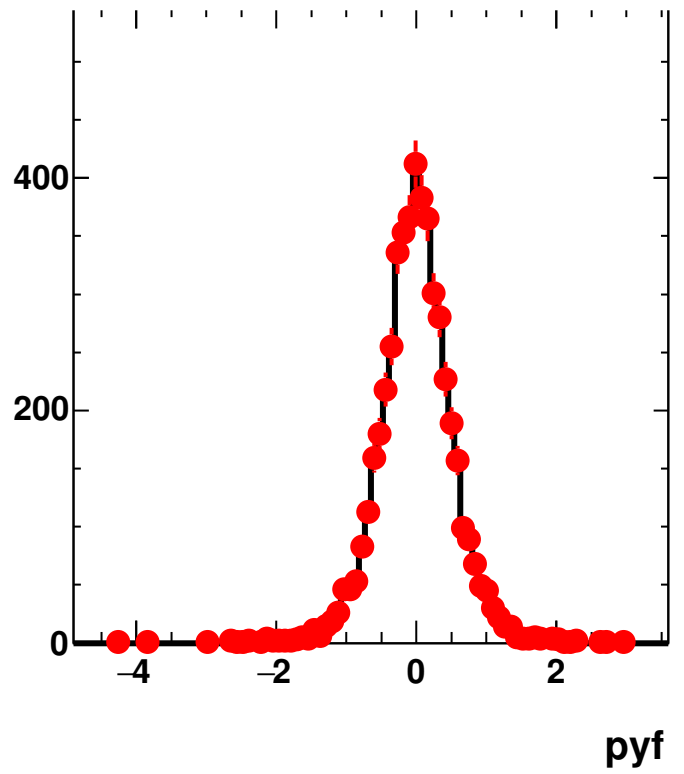
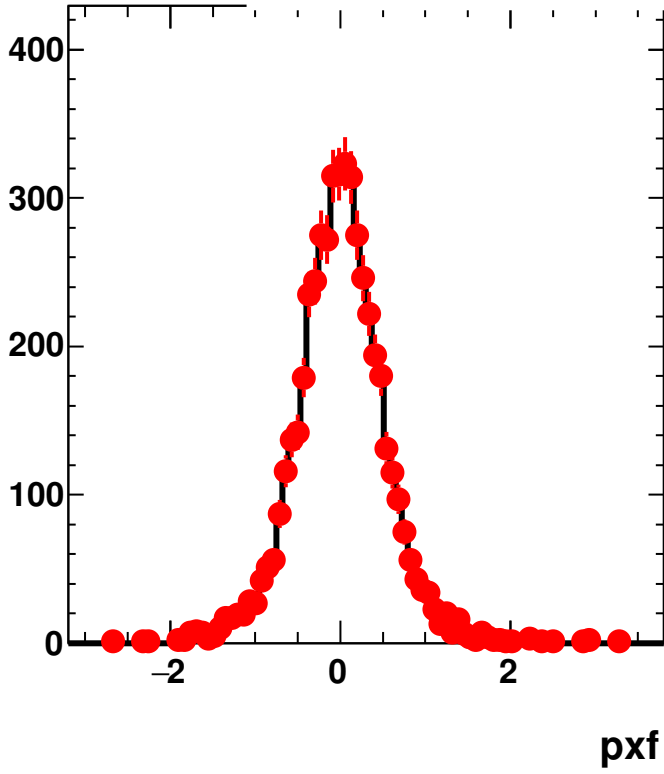


Number of final state K0 / QEL only



nfk0

Final state protons 4-momentum / QEL only



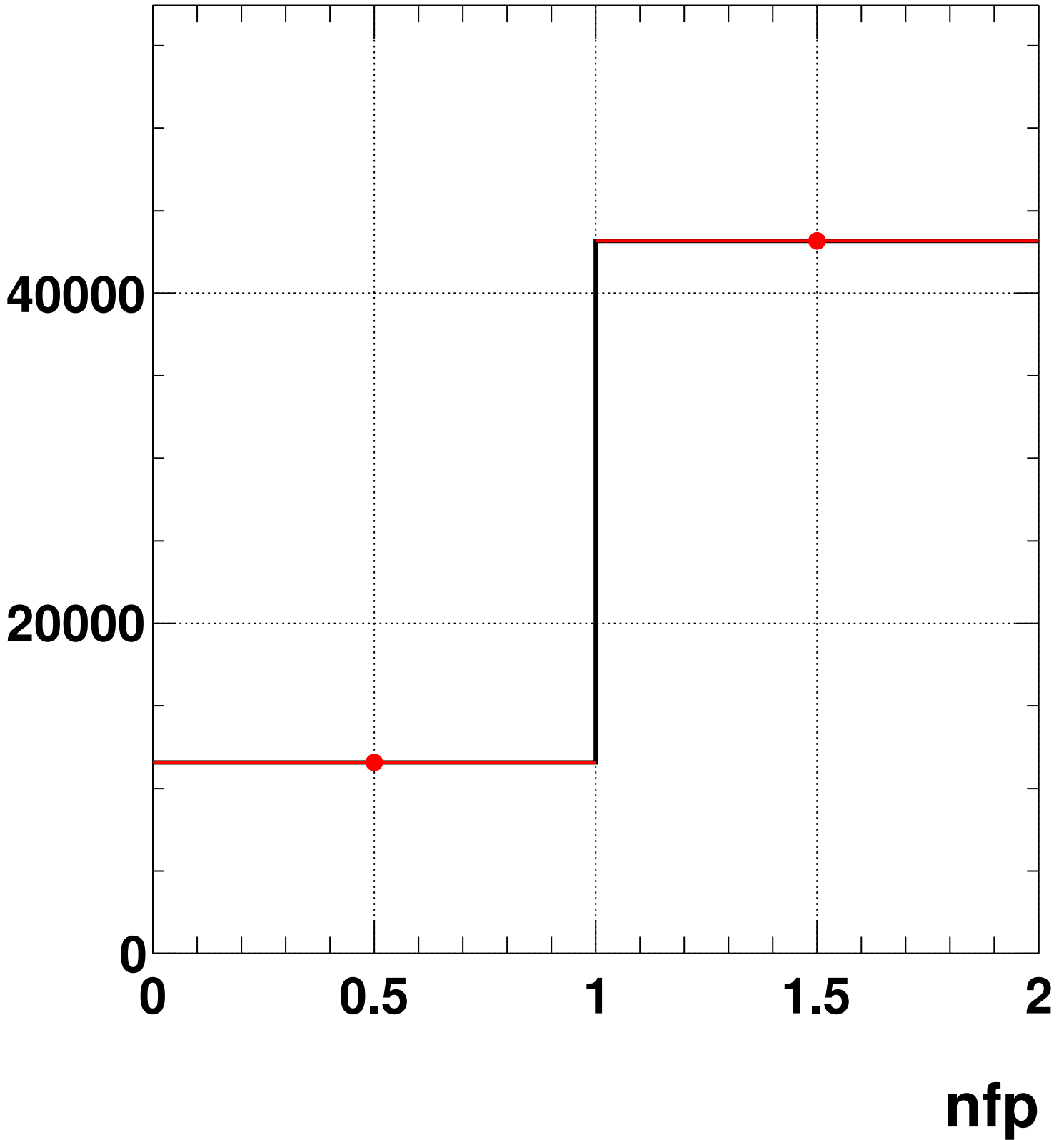
Final state neutrons 4-momentum / QEL only

Final state π_0 's 4-momentum / QEL only

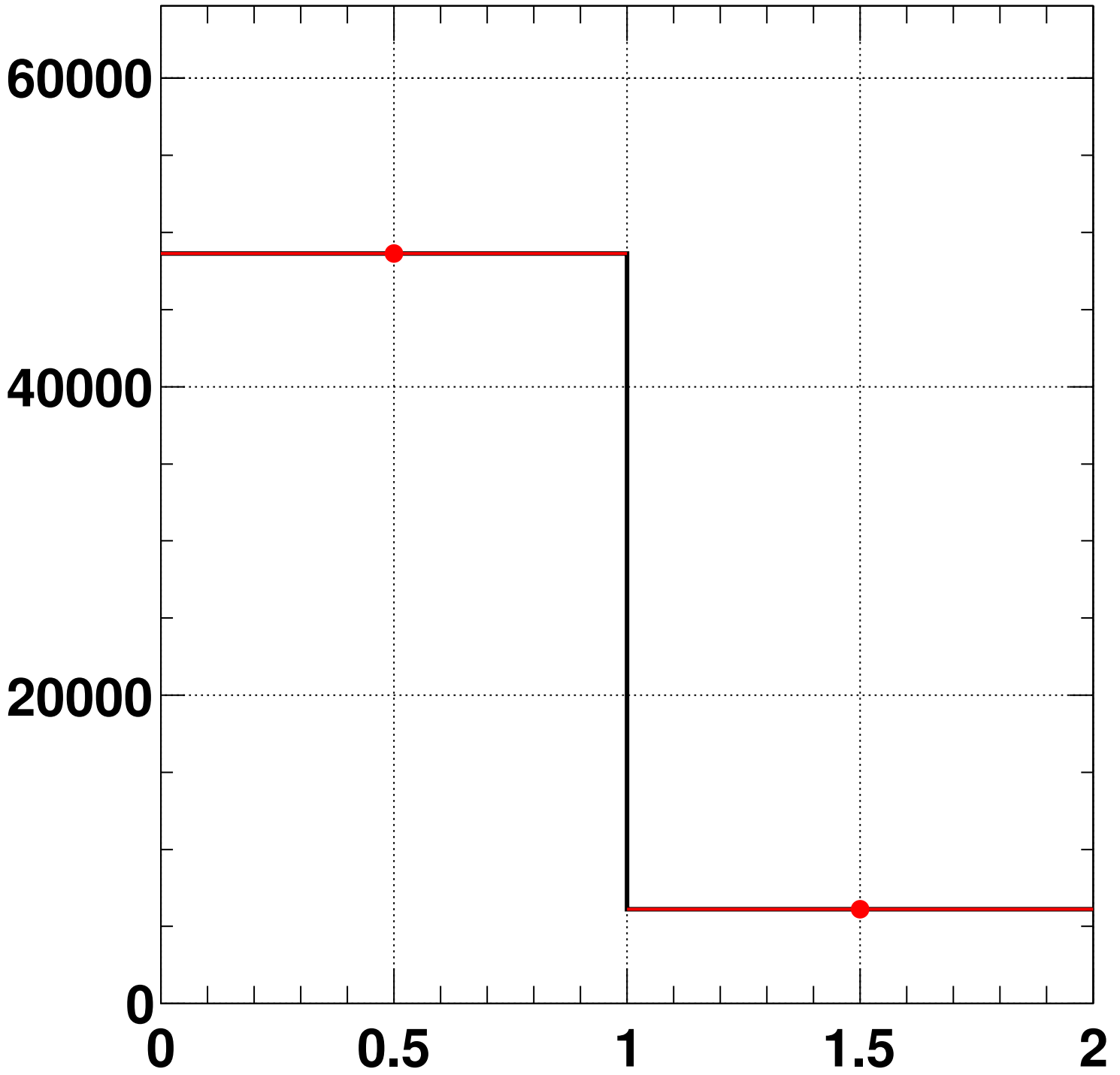
Final state π^+ 's 4-momentum / QEL only

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

Number of final state protons / RES only

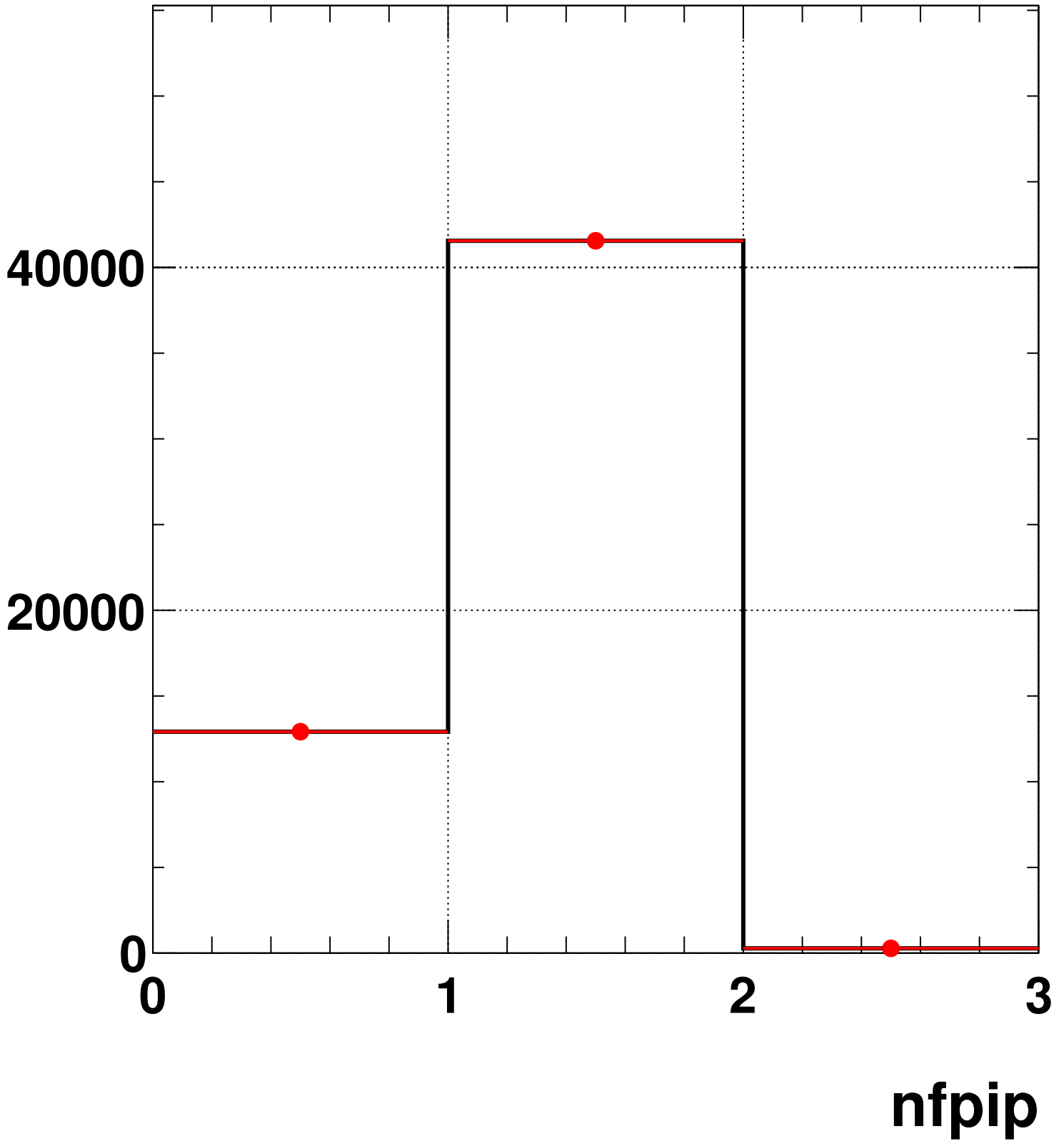


Number of final state neutrons / RES only

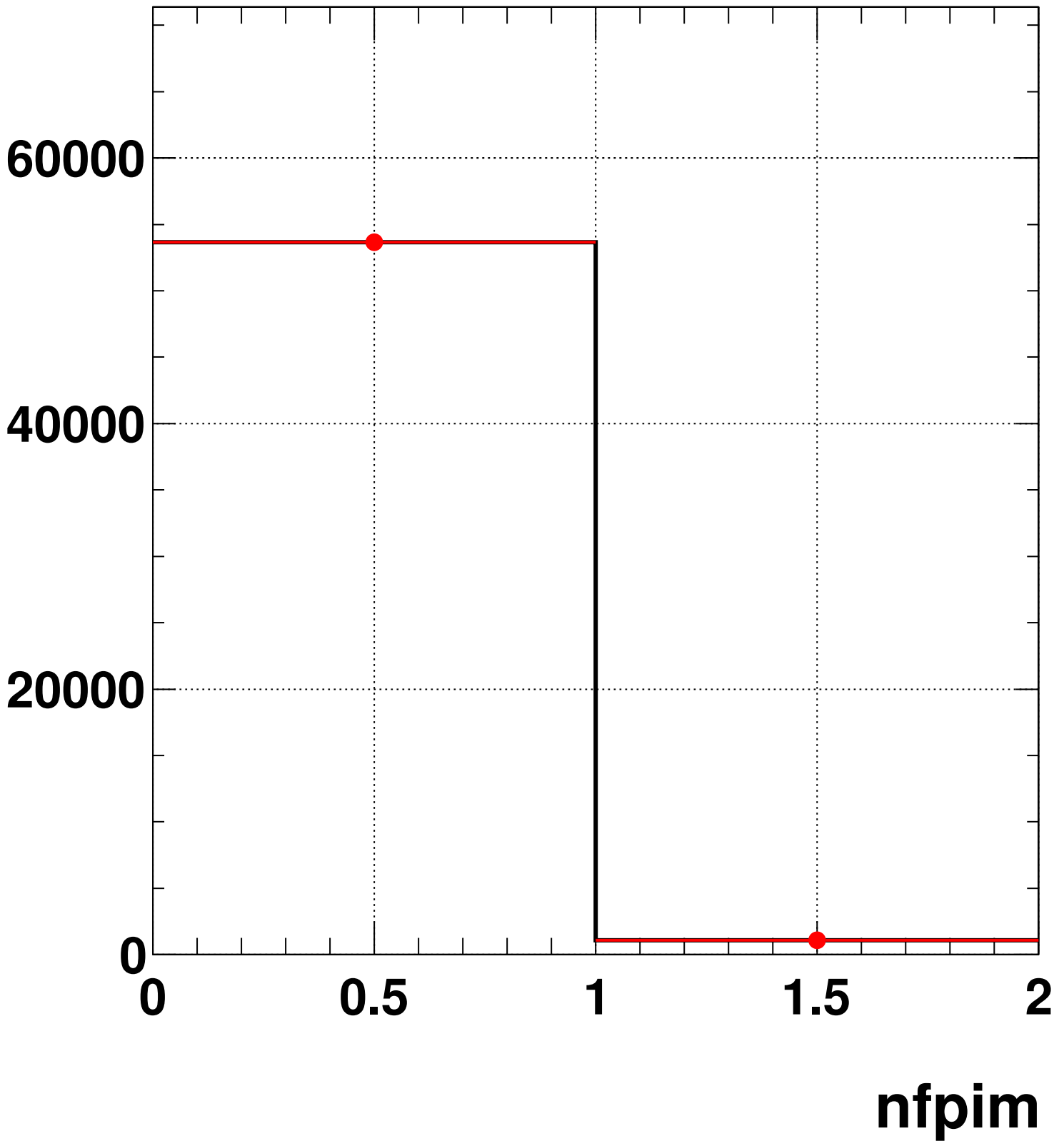


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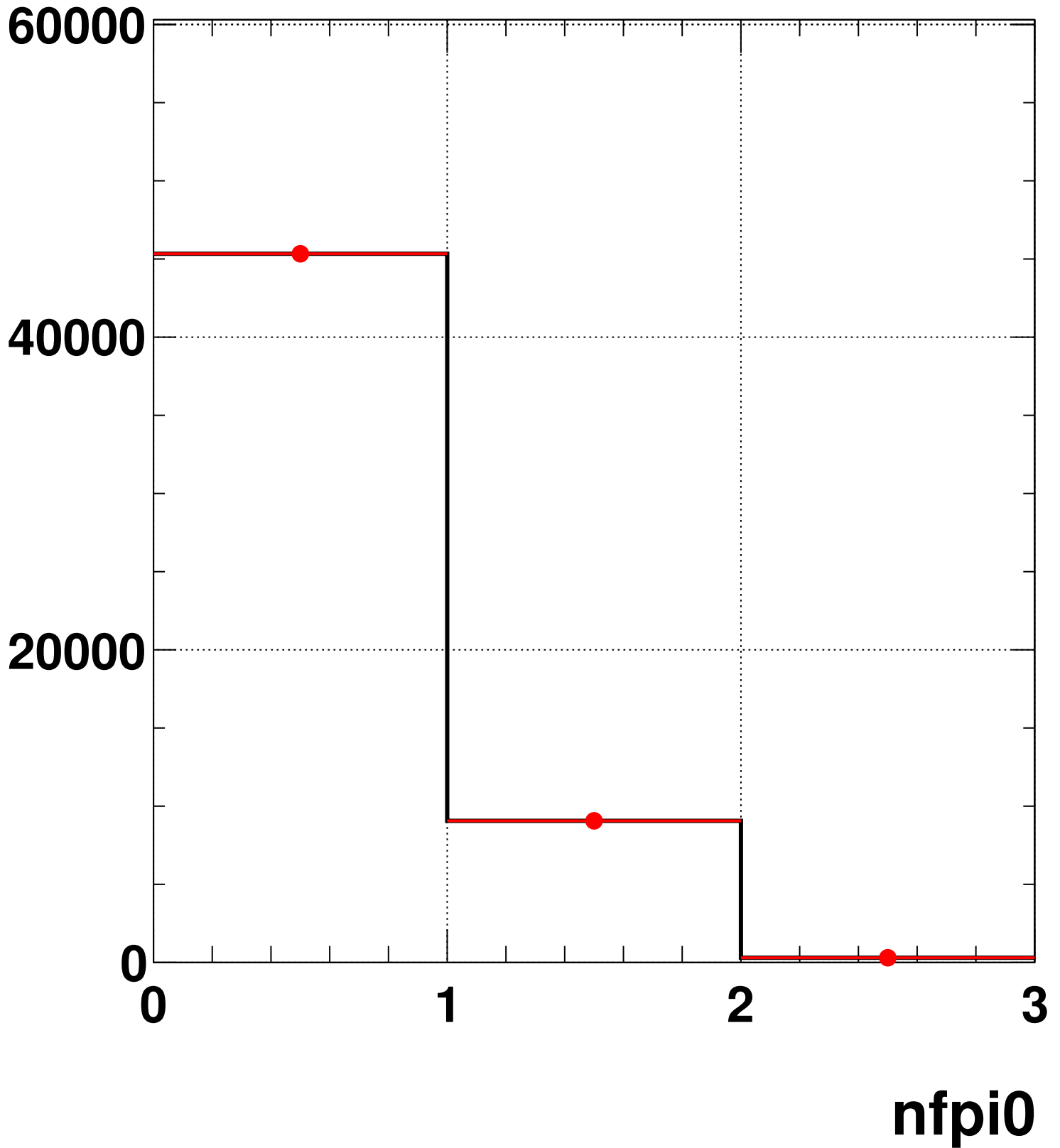
Number of final state pi+ / RES only



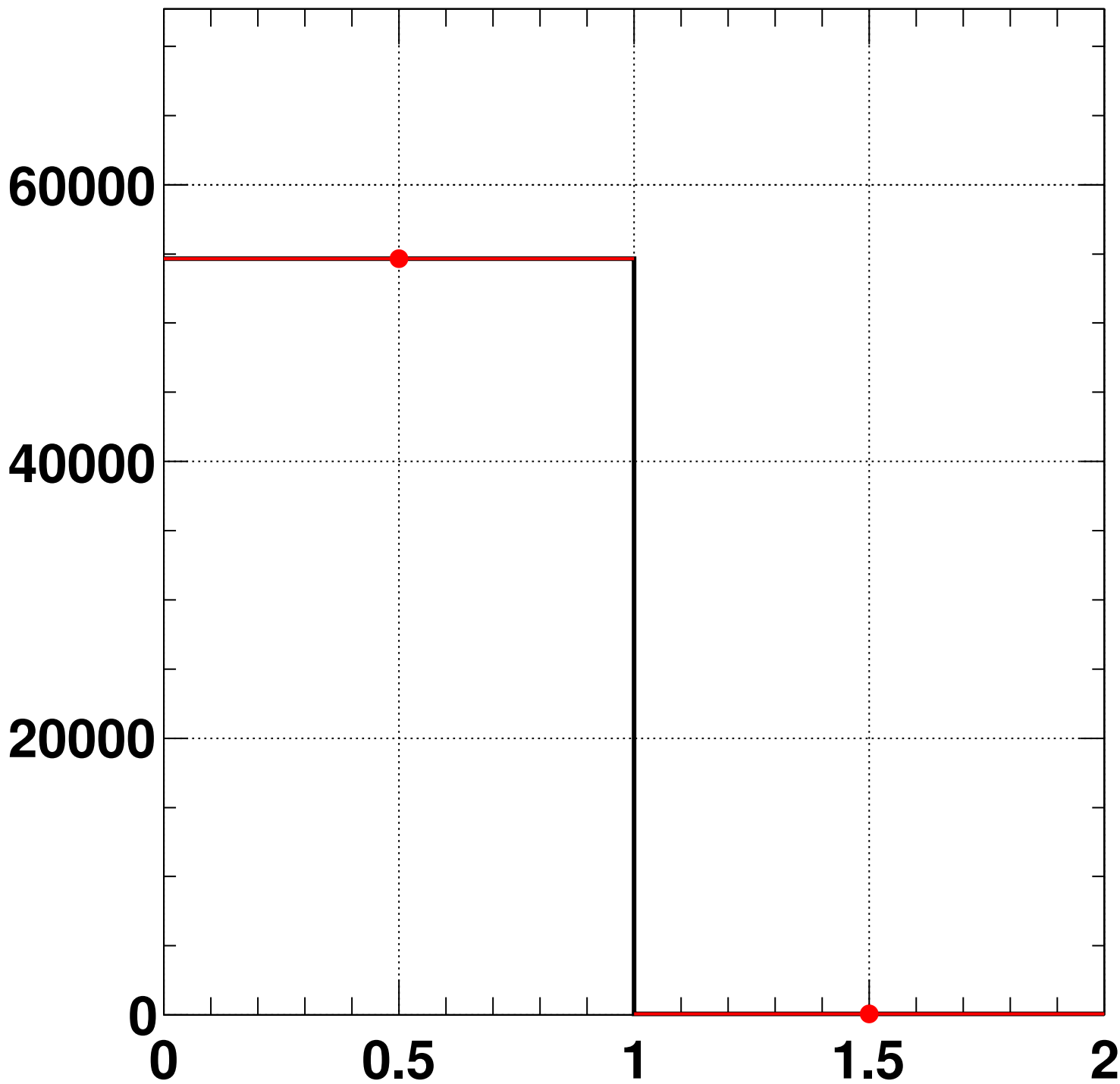
Number of final state pi- / RES only



Number of final state pi0 / RES only

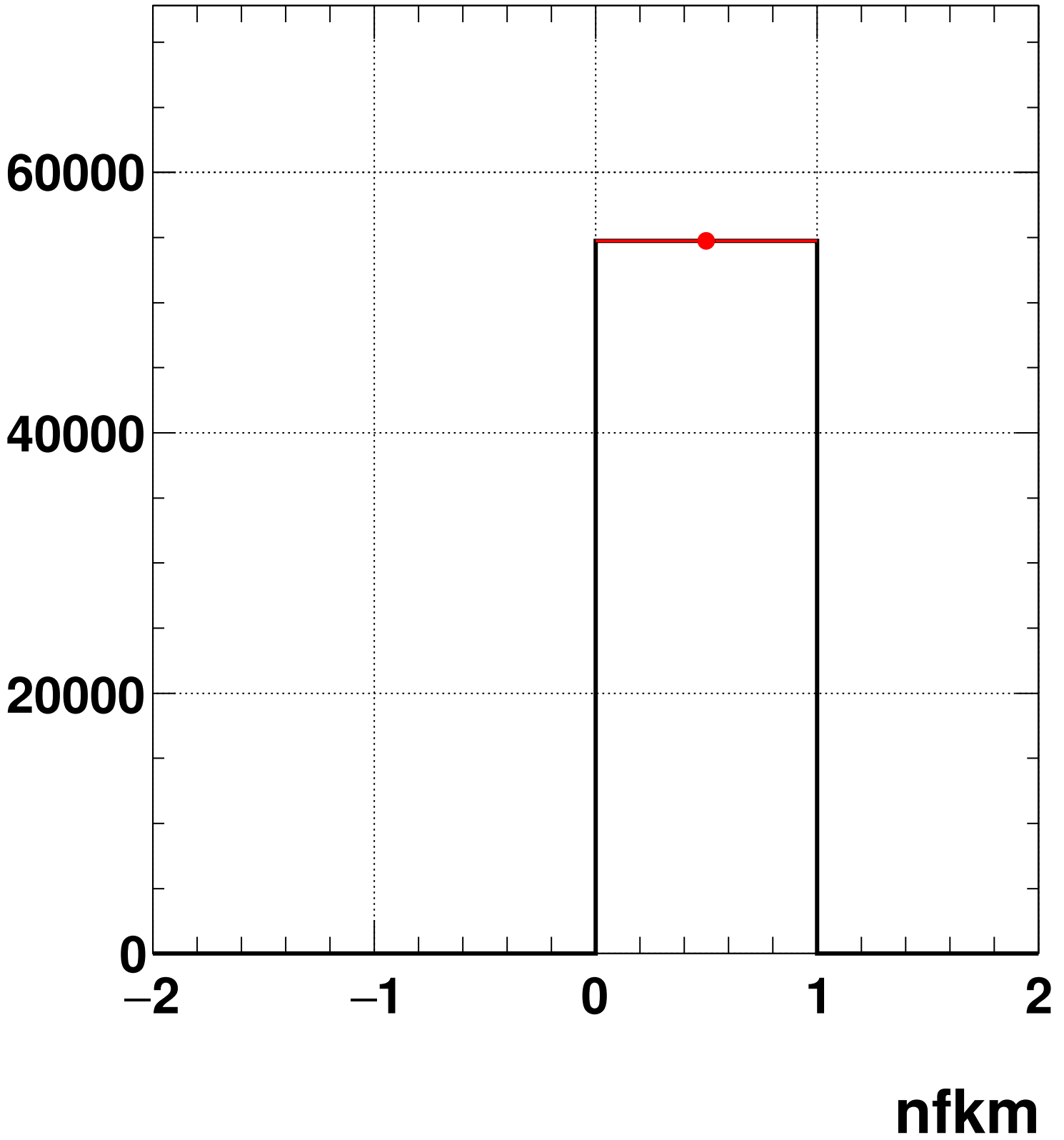


Number of final state K+ / RES only

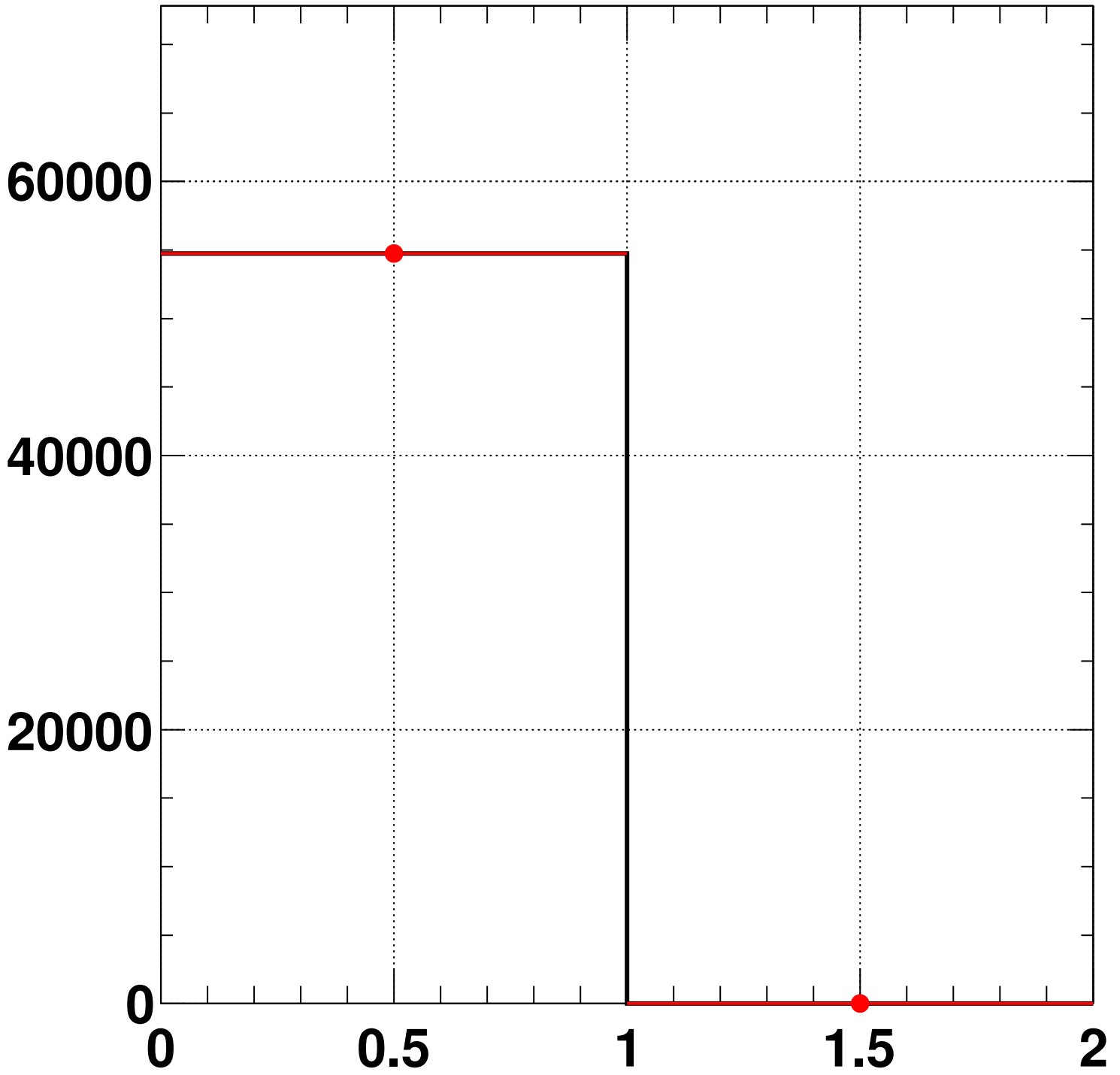


nfkp

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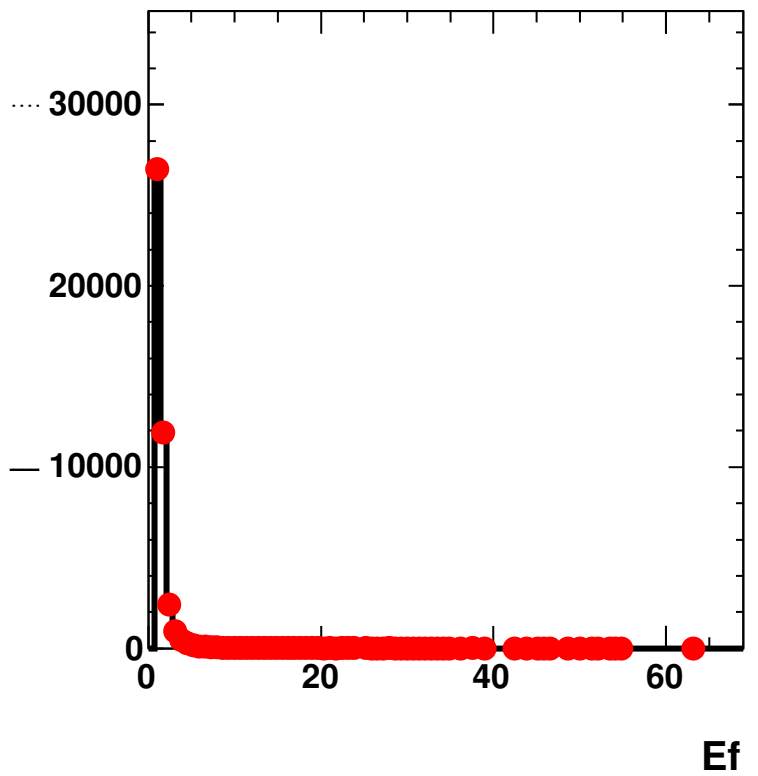
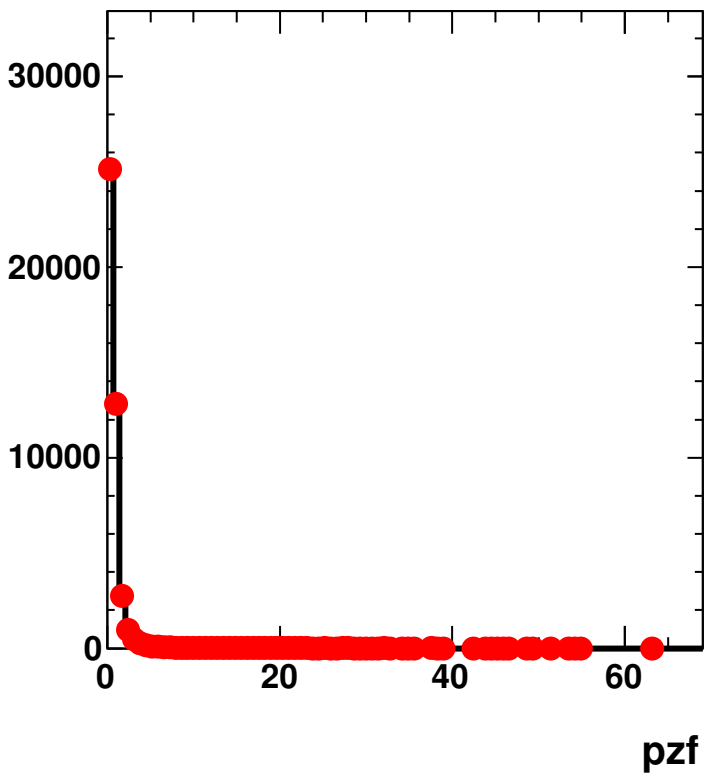
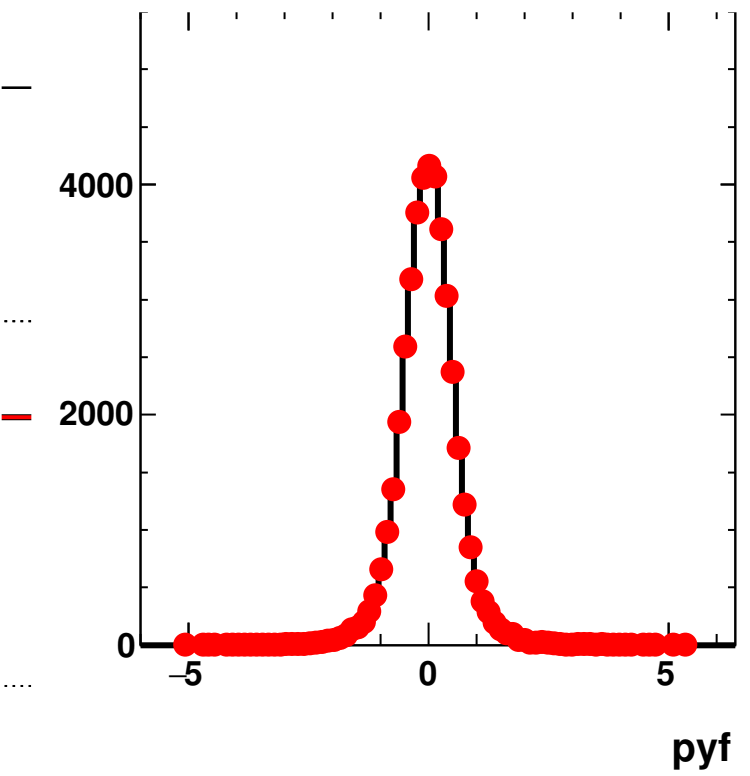
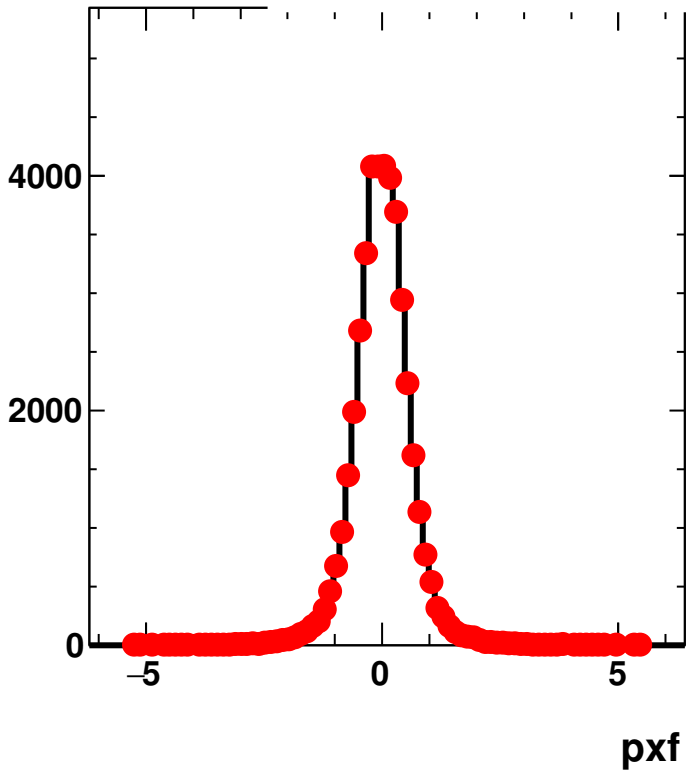


Number of final state K0 / RES only

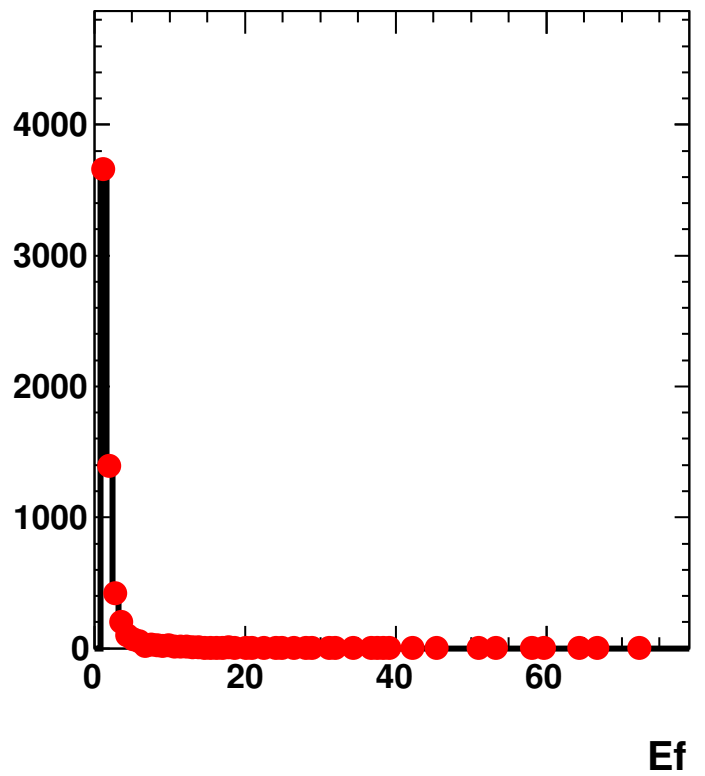
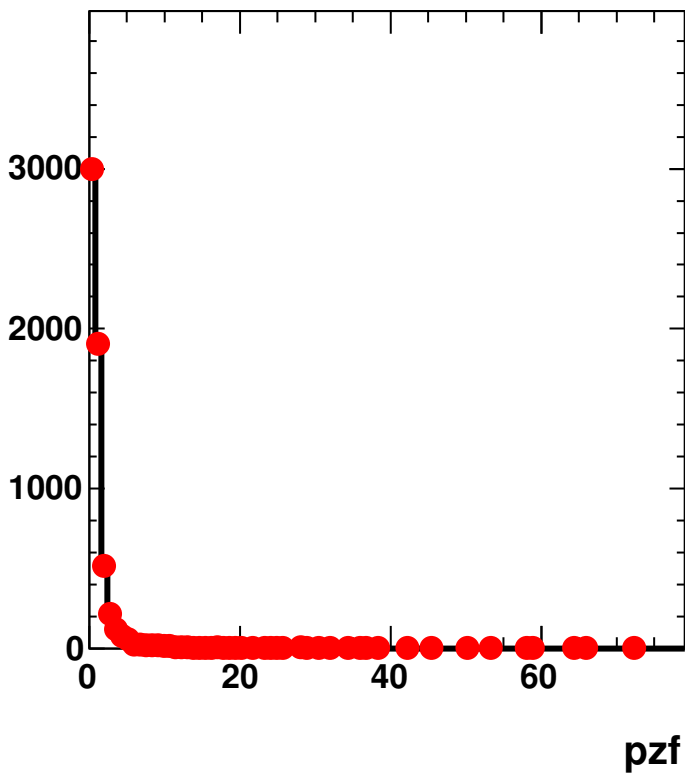
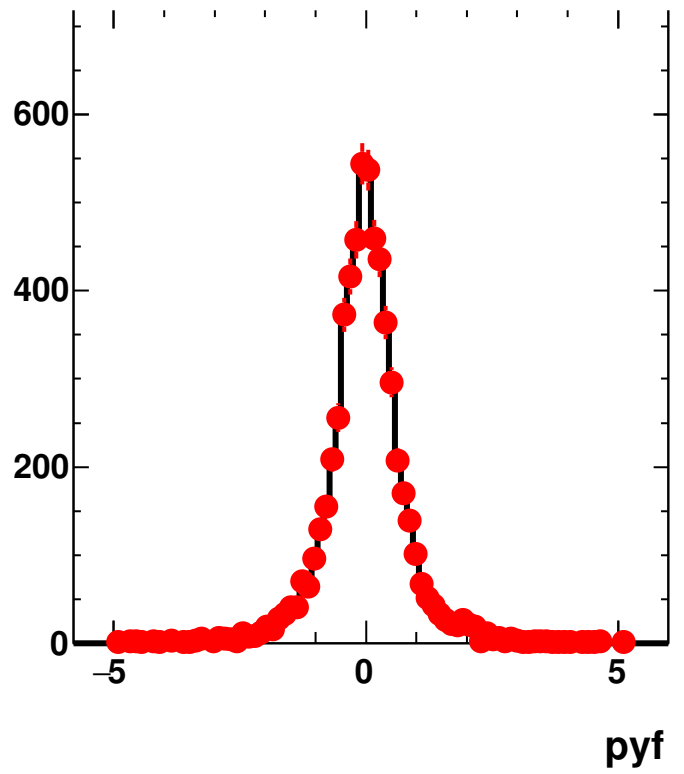
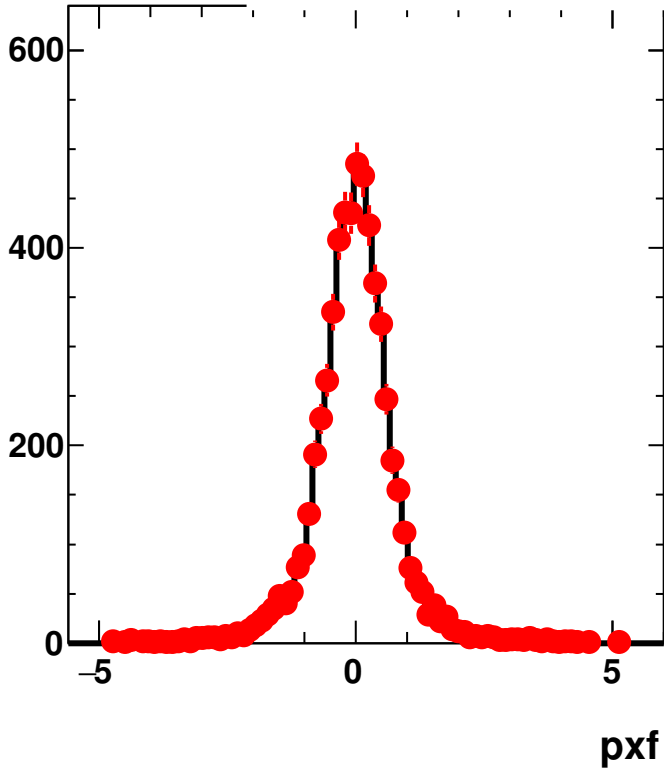


nfk0

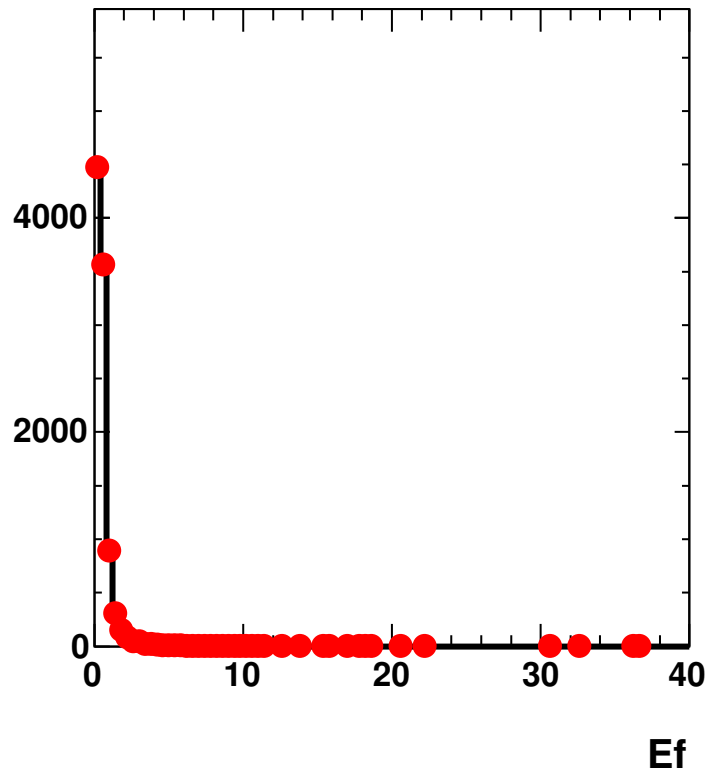
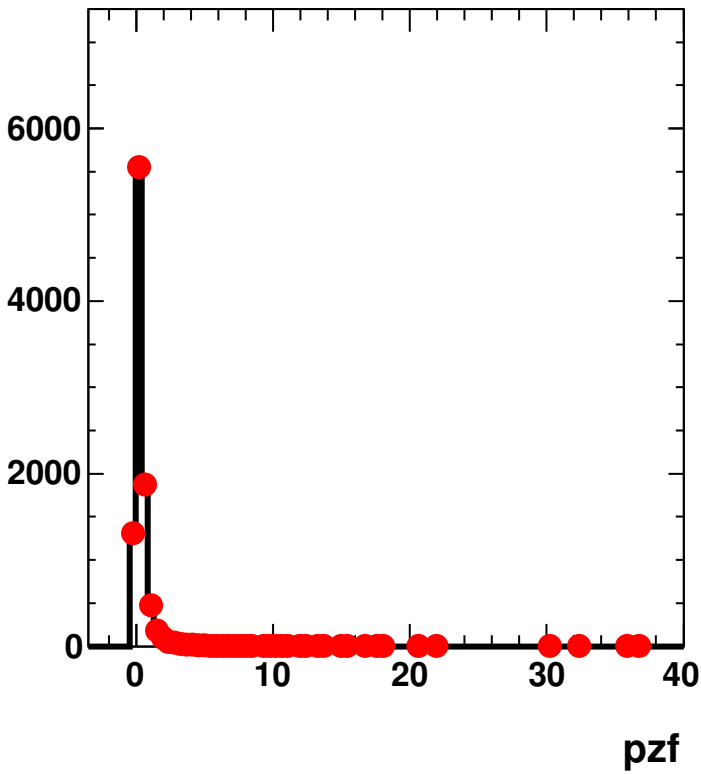
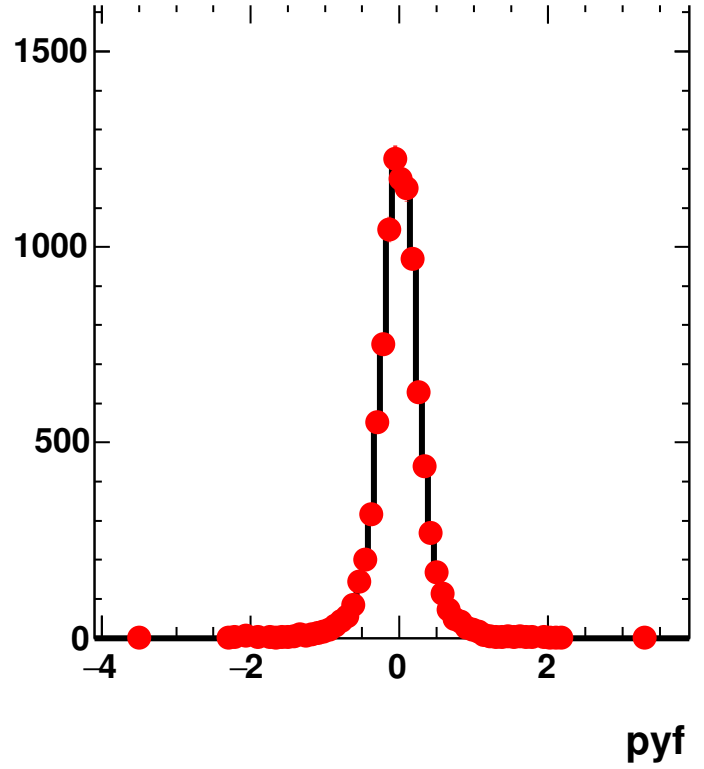
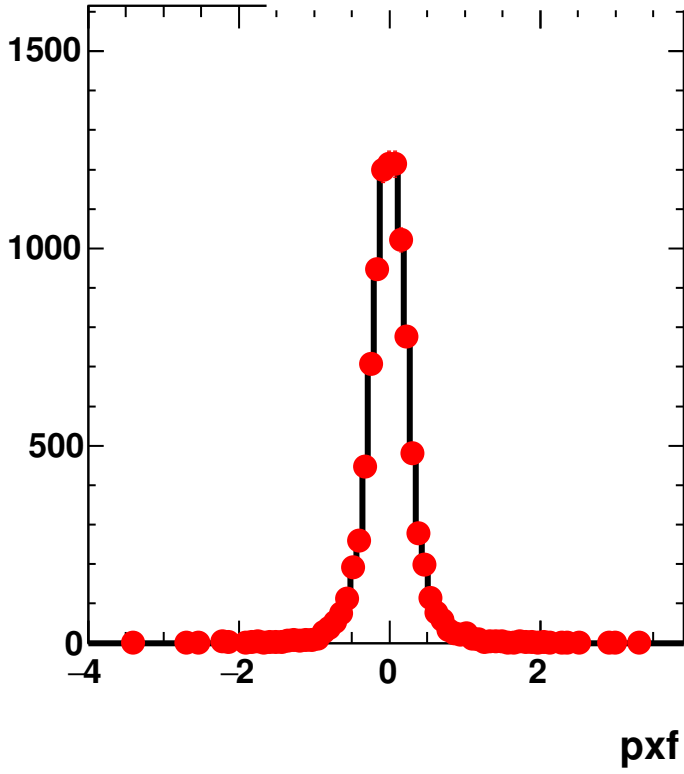
Final state protons 4-momentum / RES only



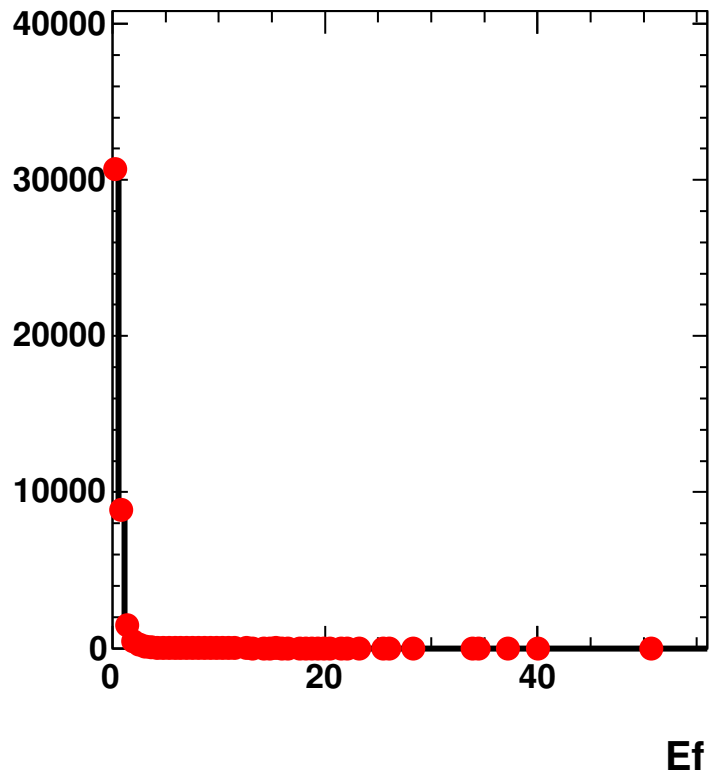
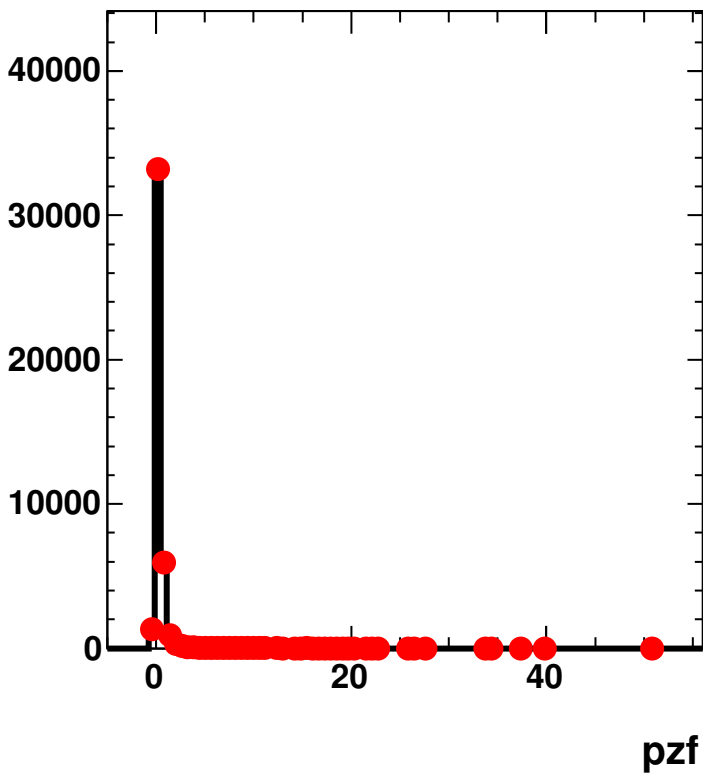
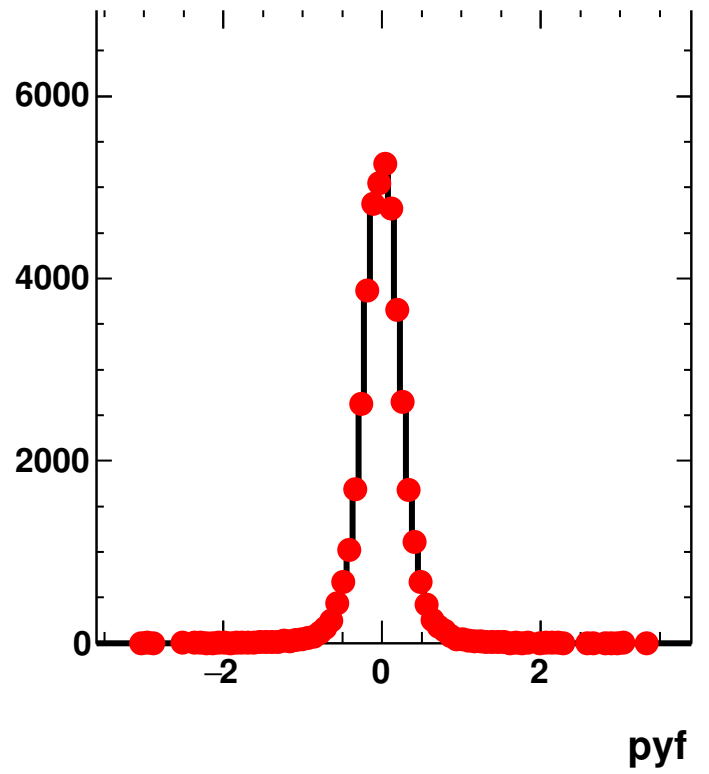
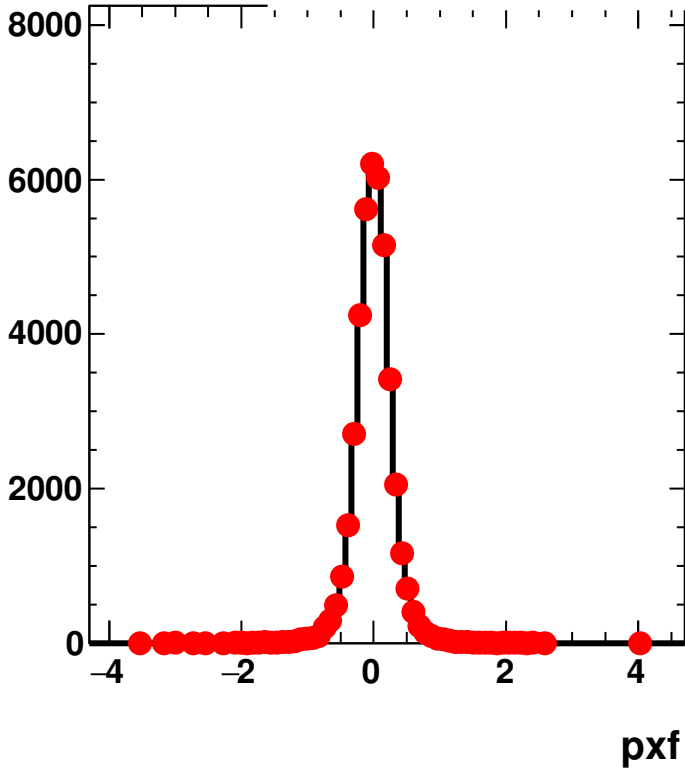
Final state neutrons 4-momentum / RES only



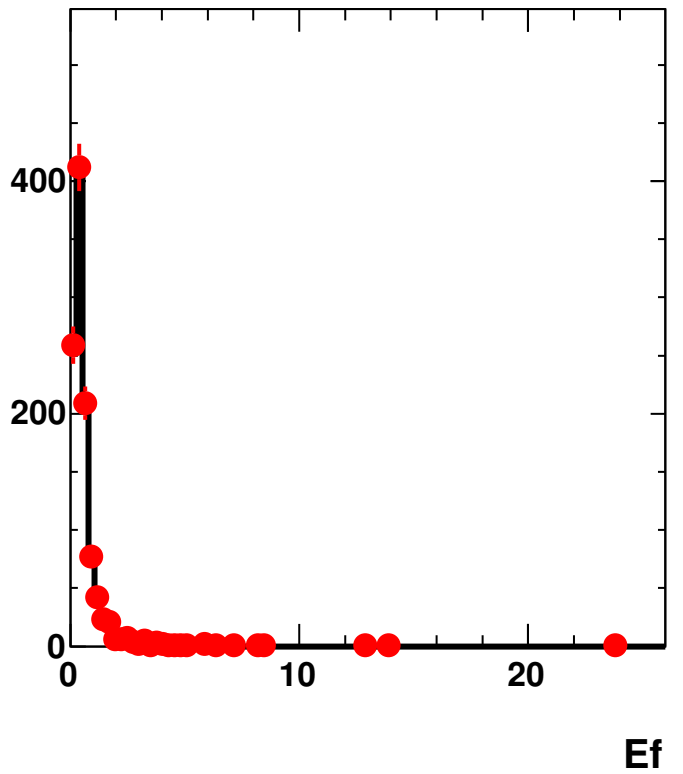
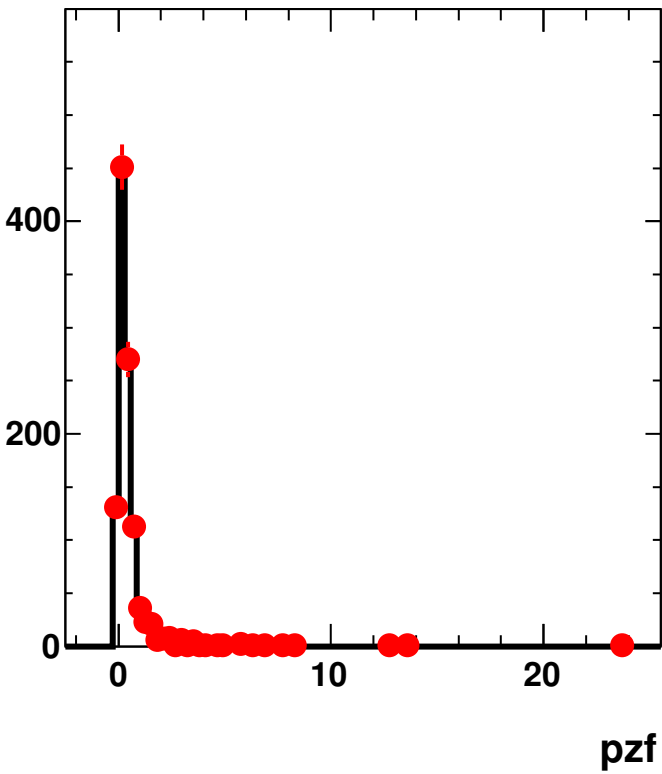
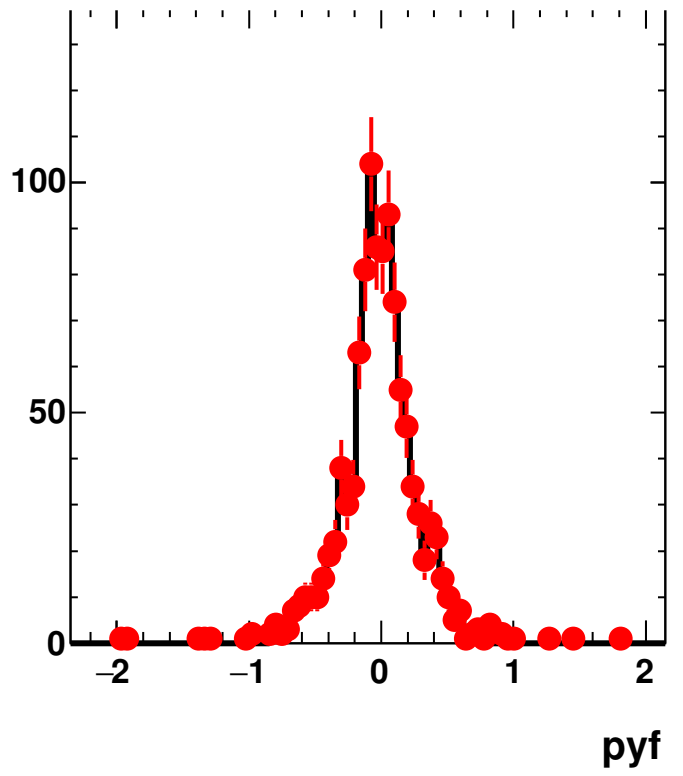
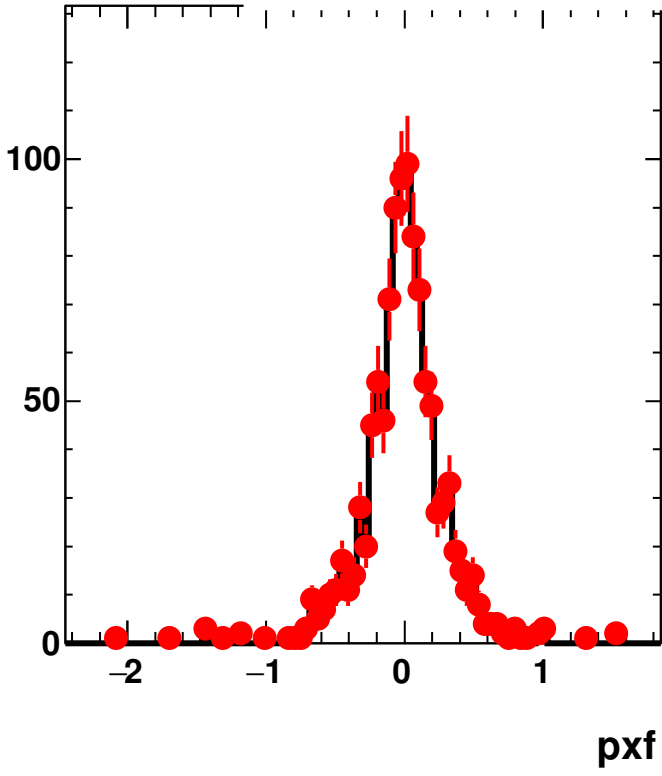
Final state pi0's 4-momentum / RES only



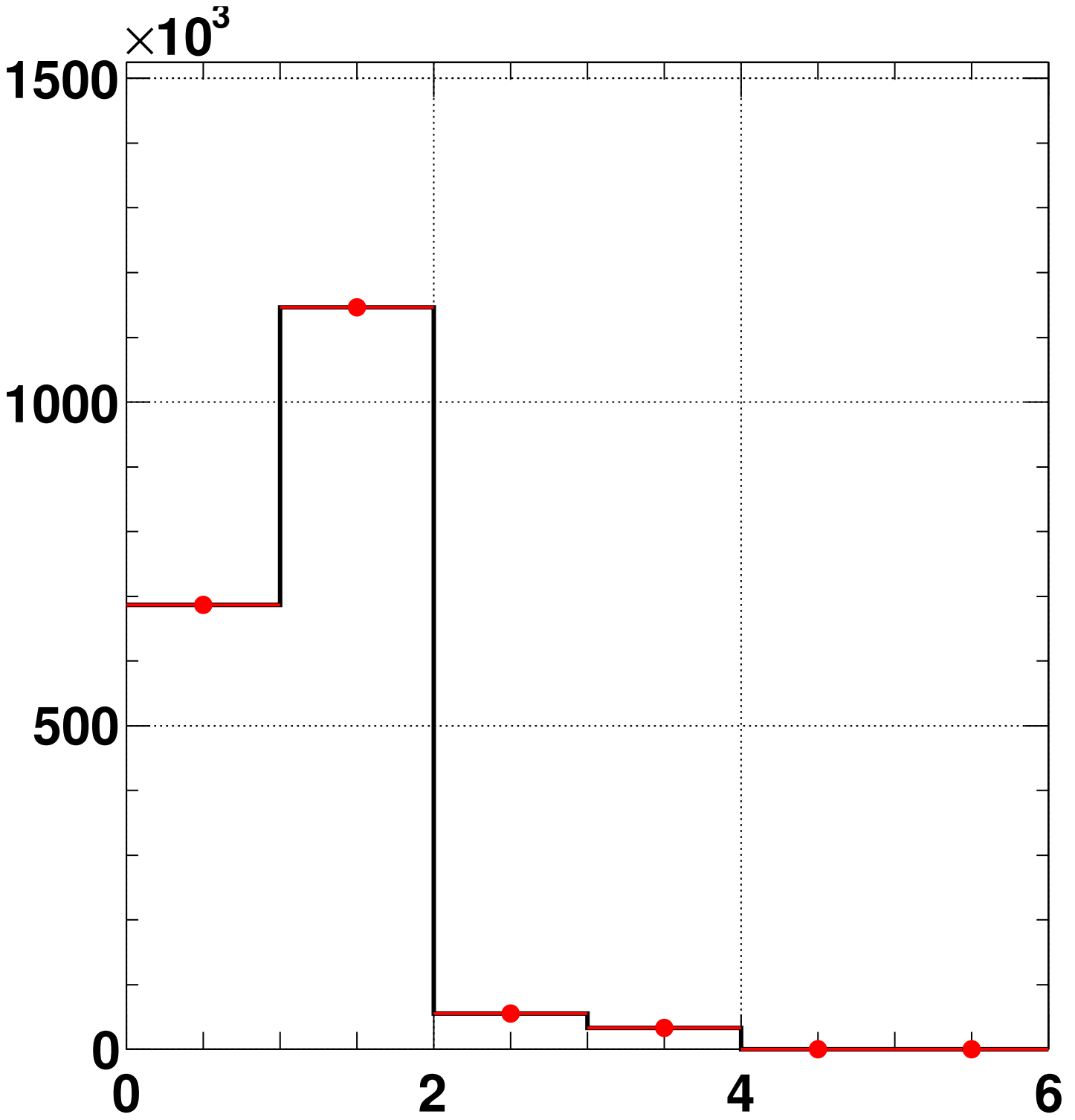
Final state pi+'s 4-momentum / RES only



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

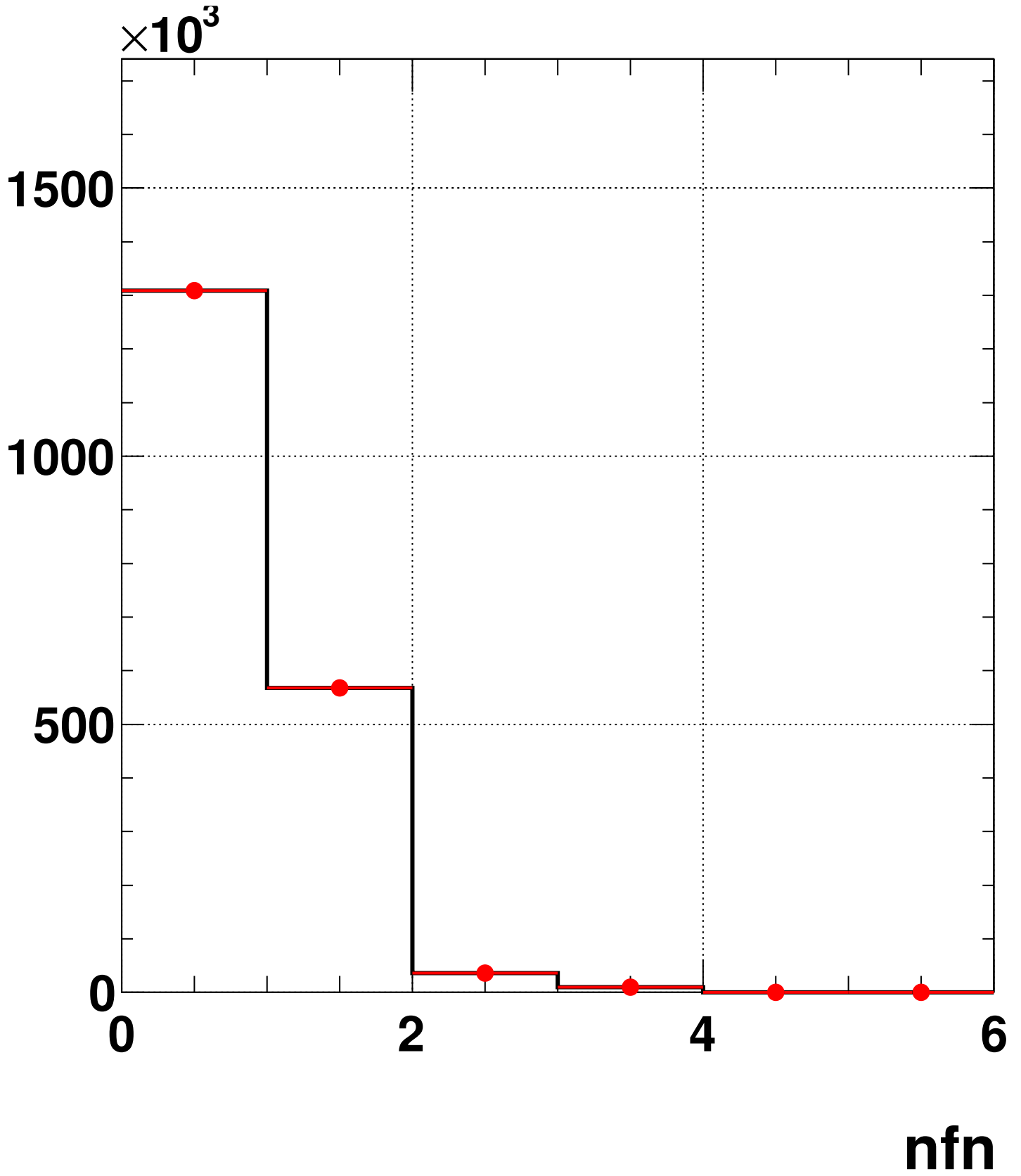


Number of final state protons / DIS only

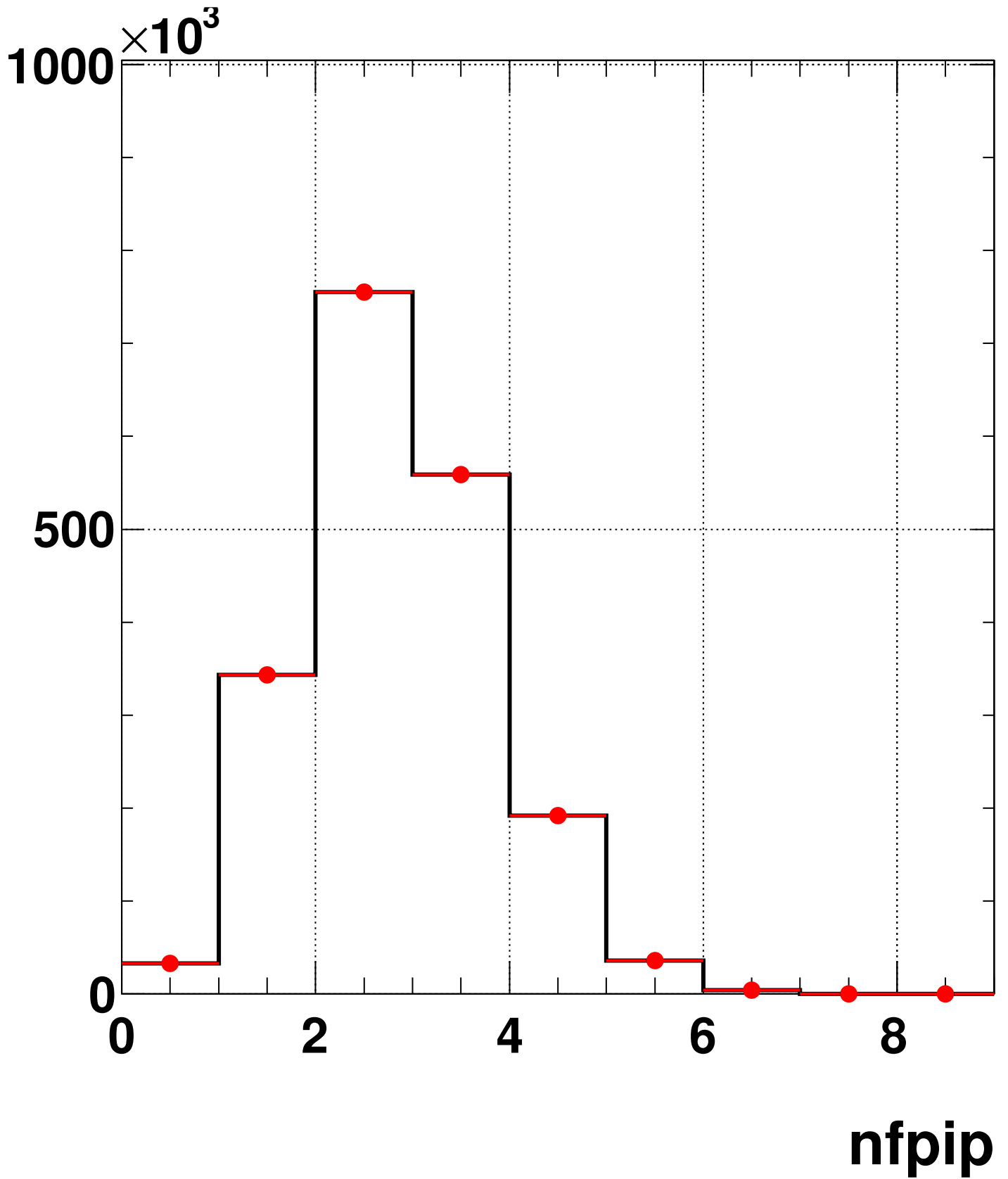


nfp

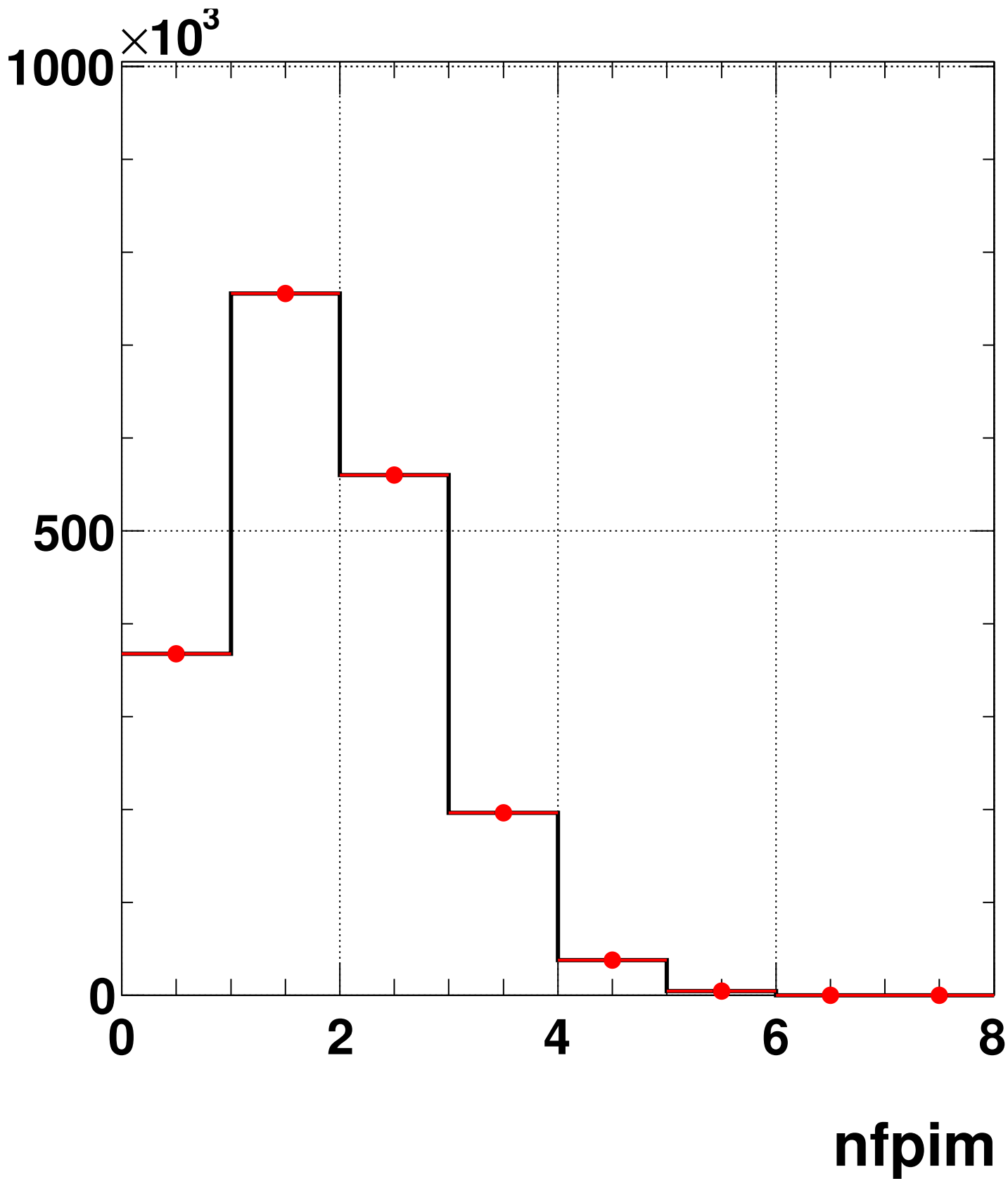
Number of final state neutrons / DIS only



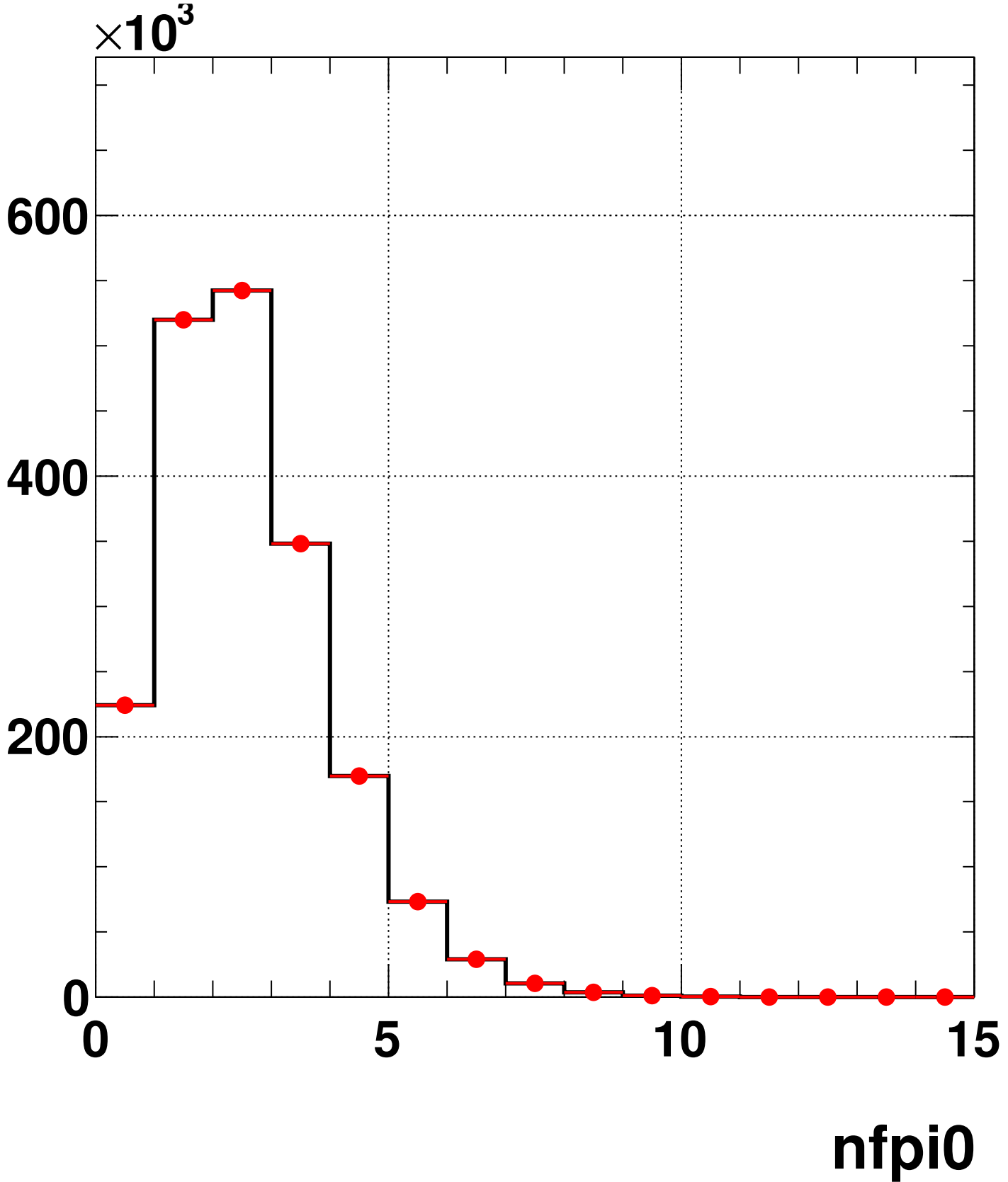
Number of final state pi+ / DIS only



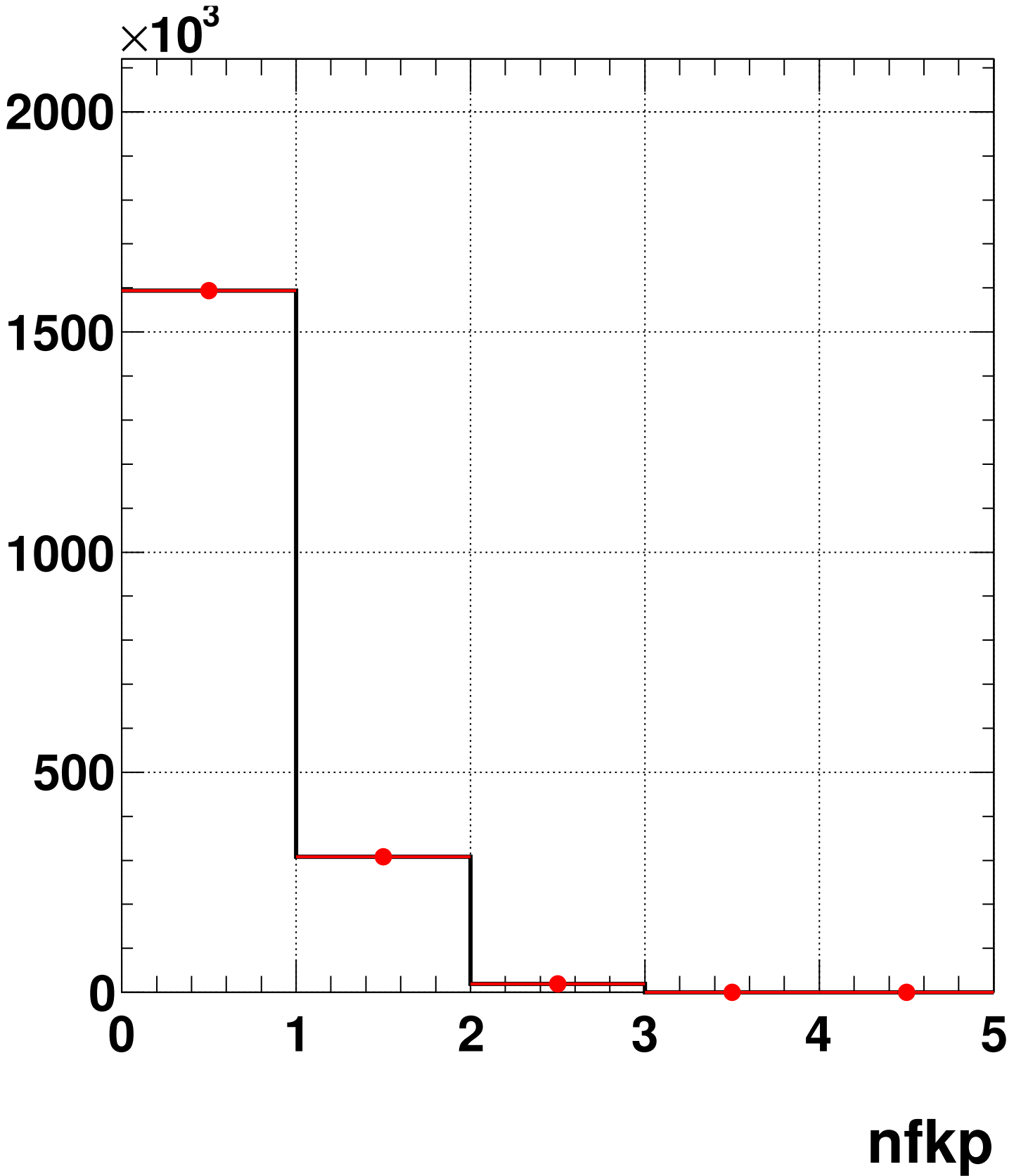
Number of final state pi- / DIS only



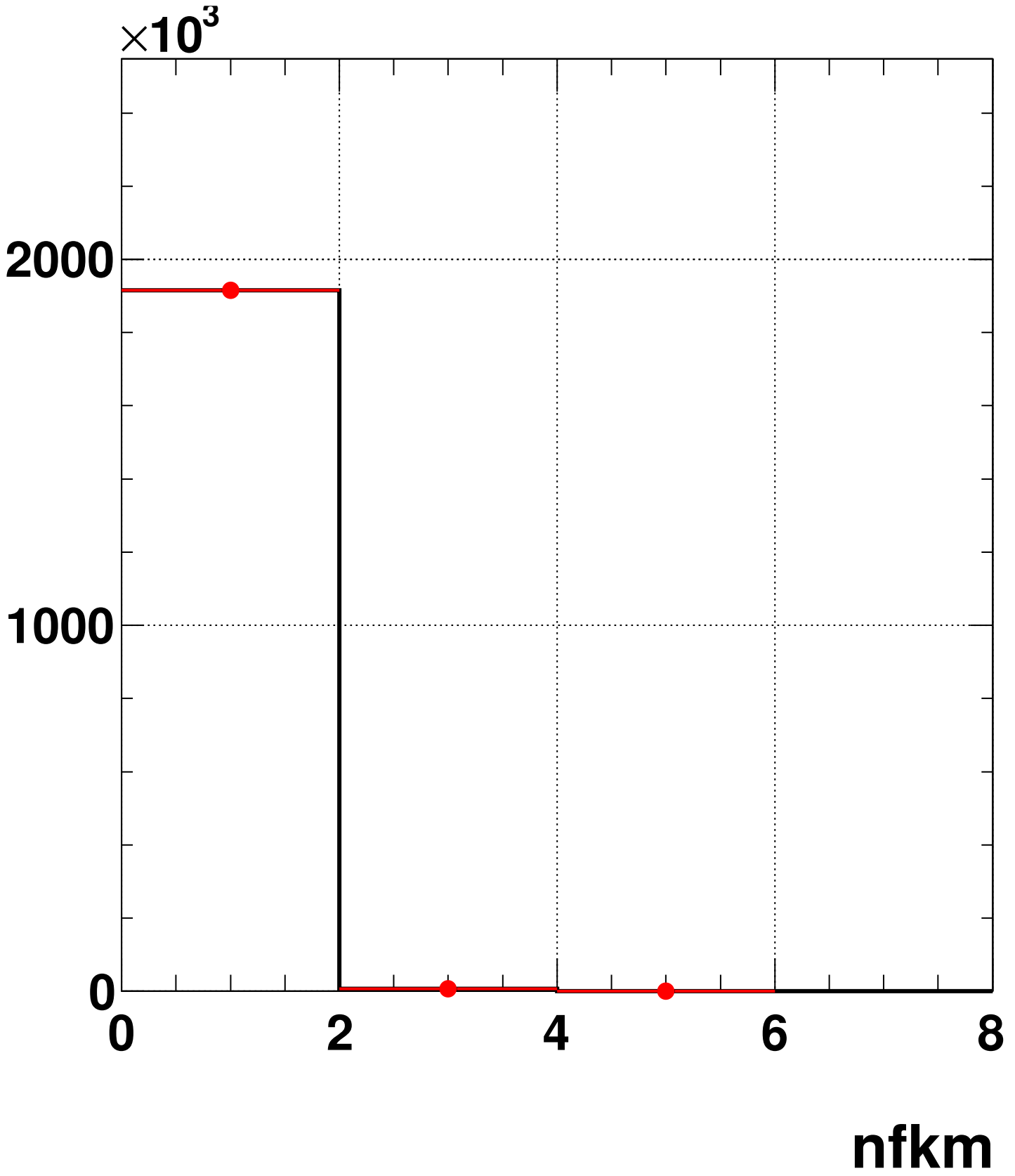
Number of final state pi0 / DIS only



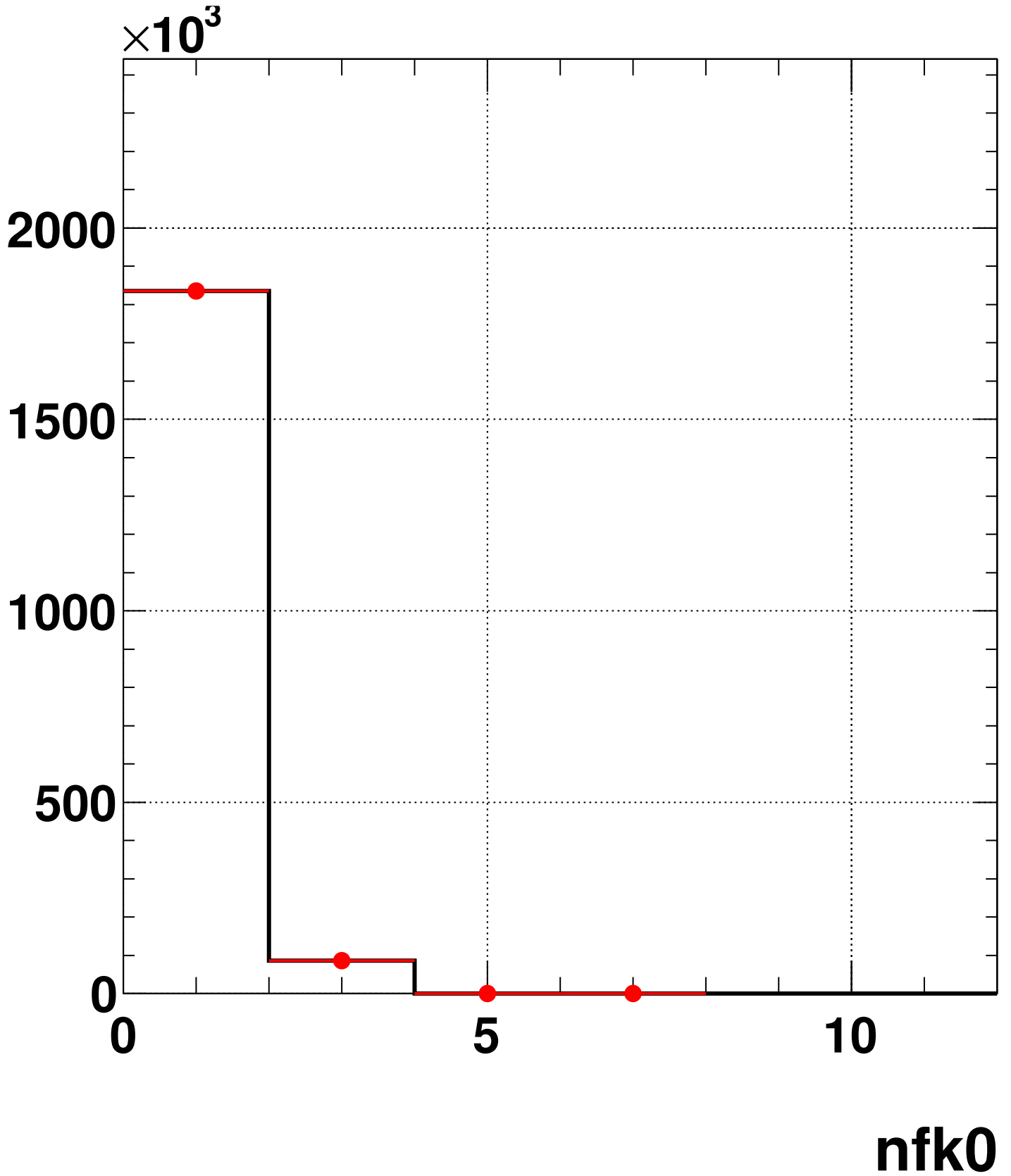
Number of final state K+ / DIS only



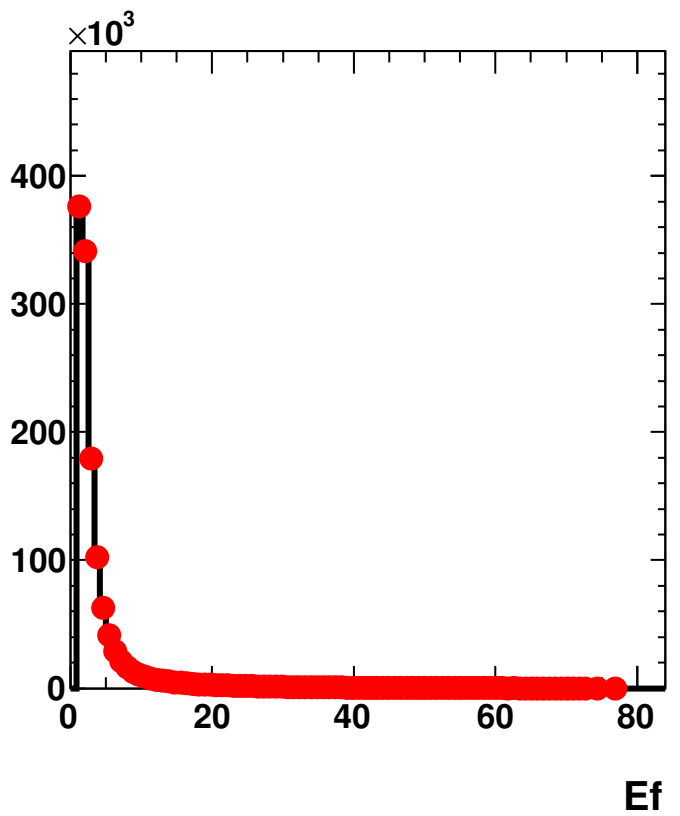
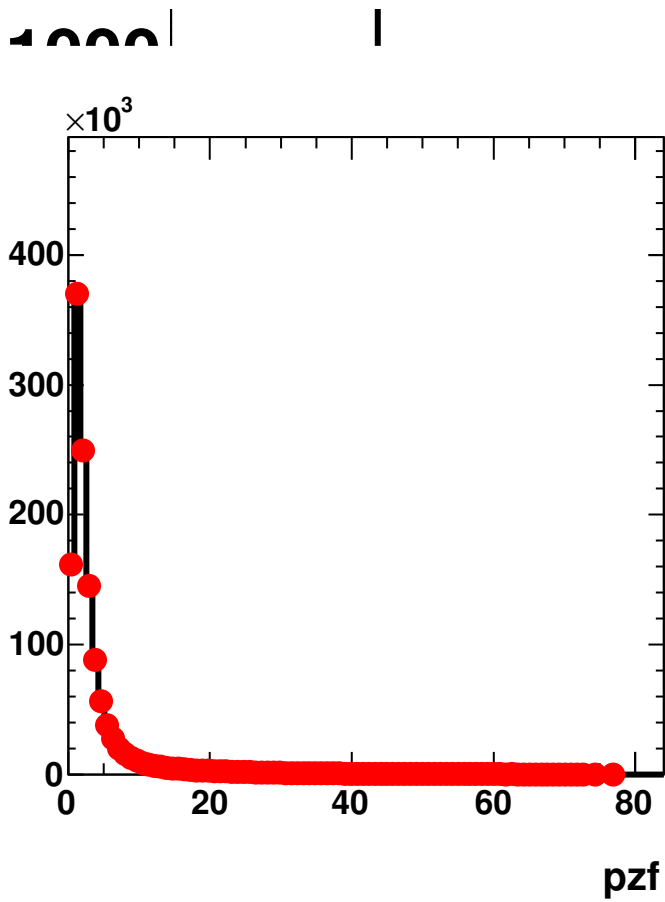
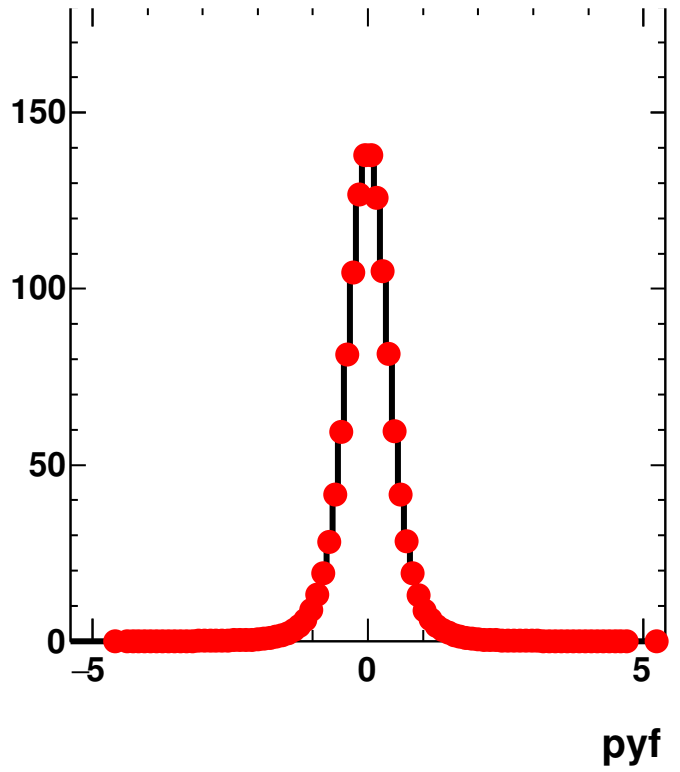
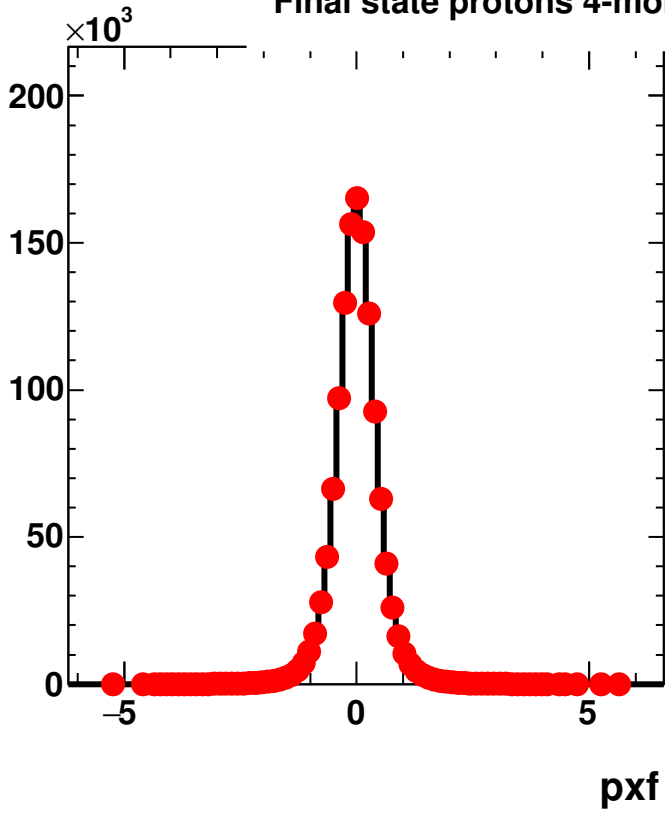
Number of final state K- / DIS only



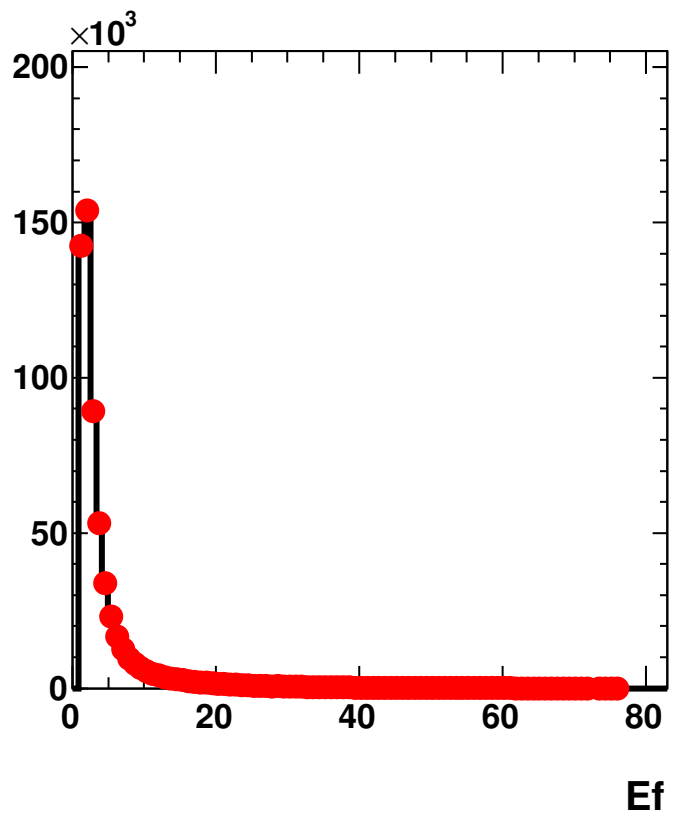
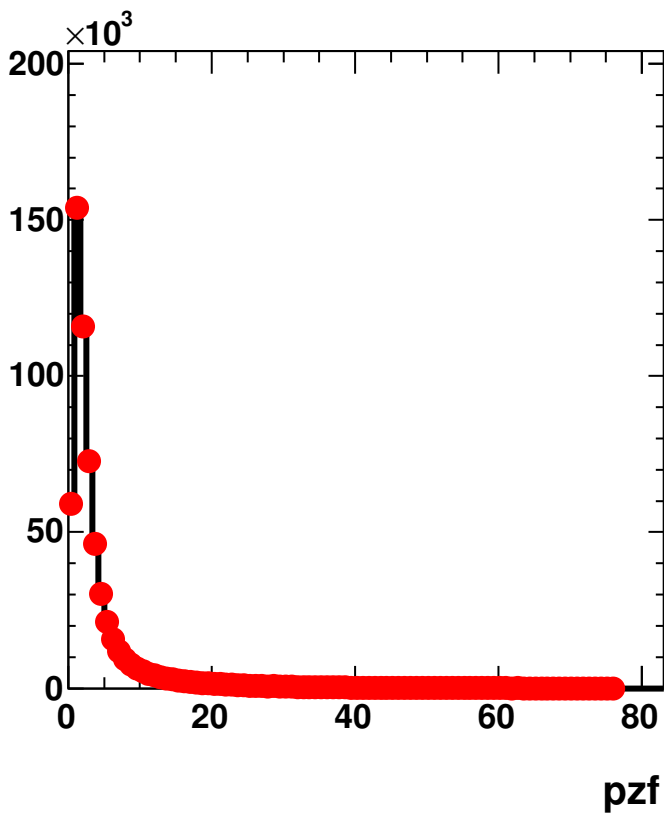
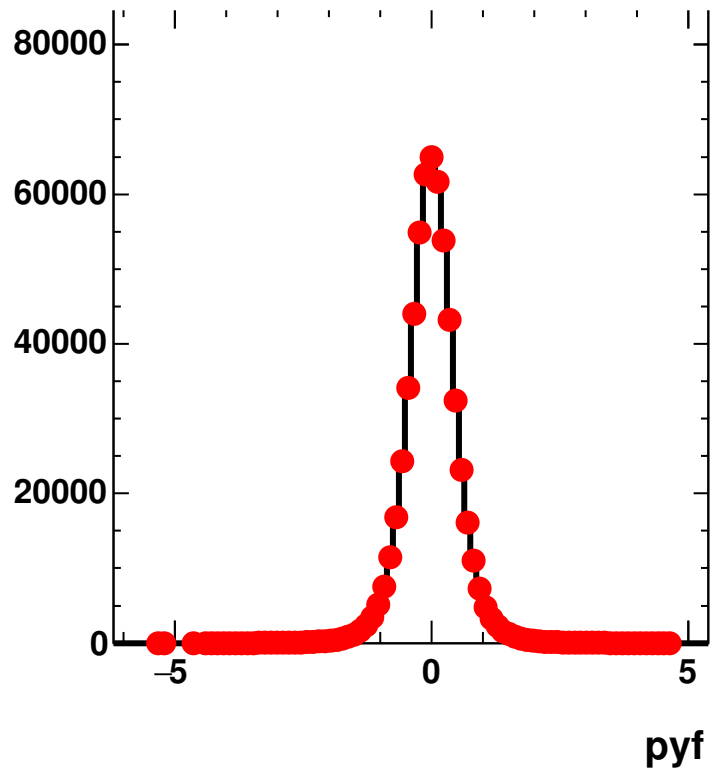
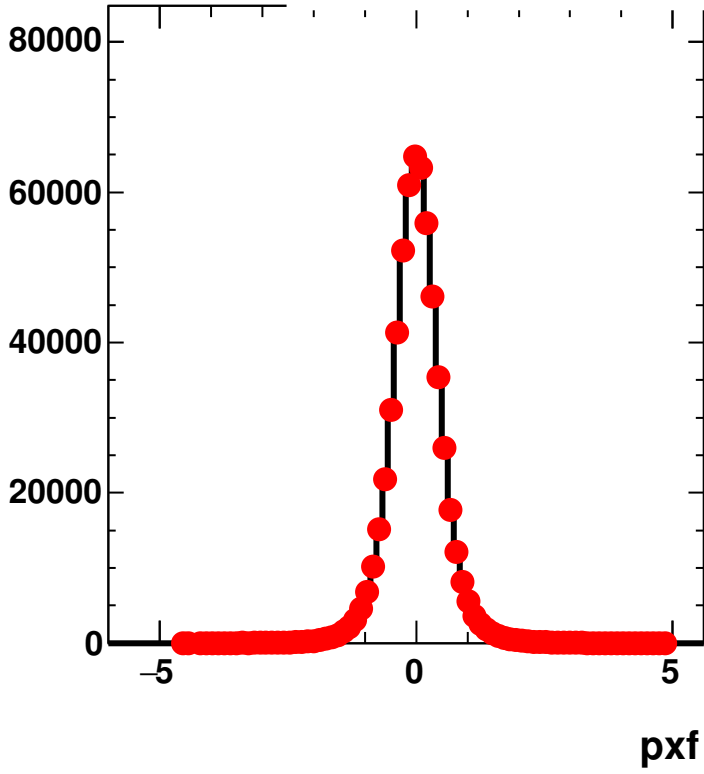
Number of final state K0 / DIS only



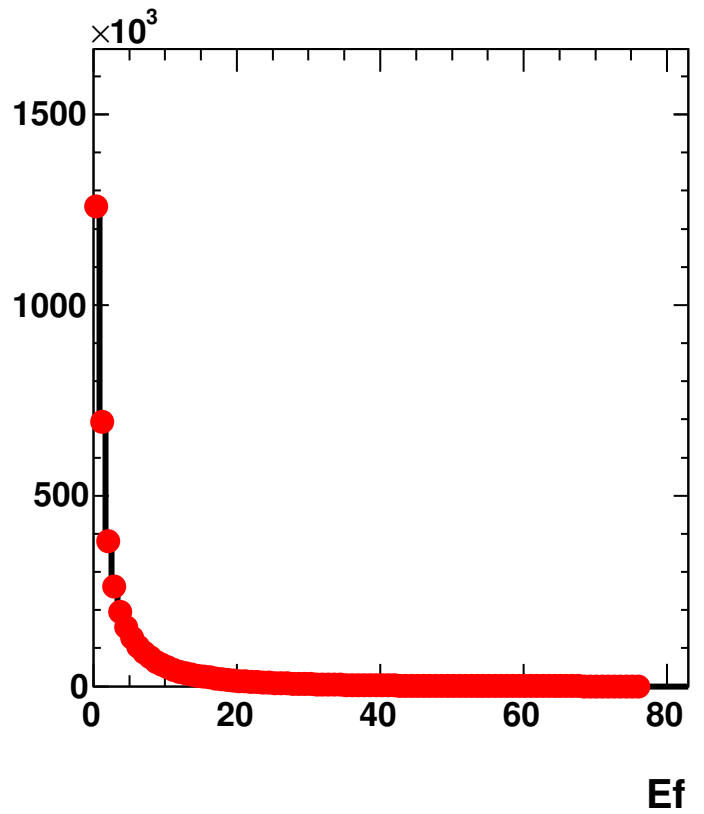
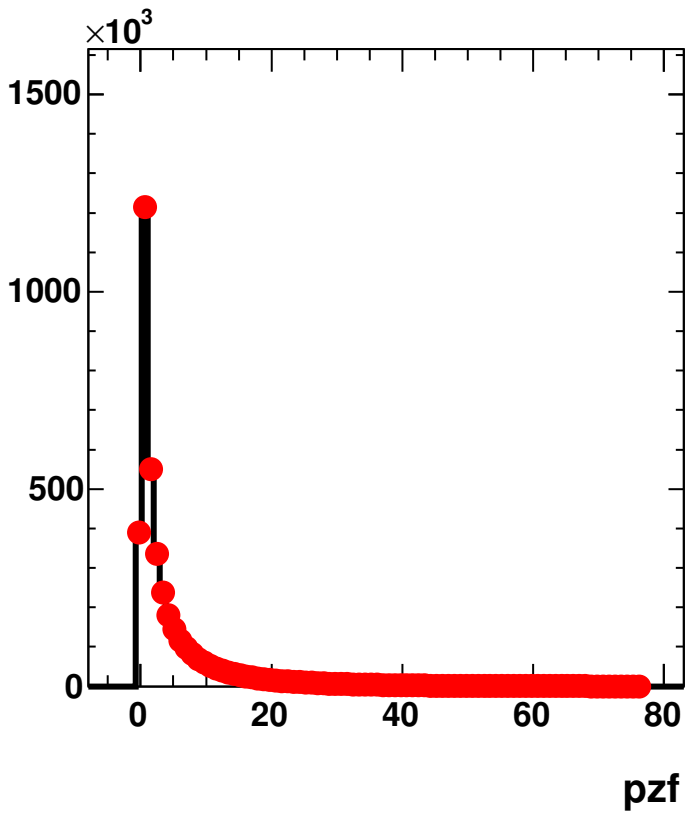
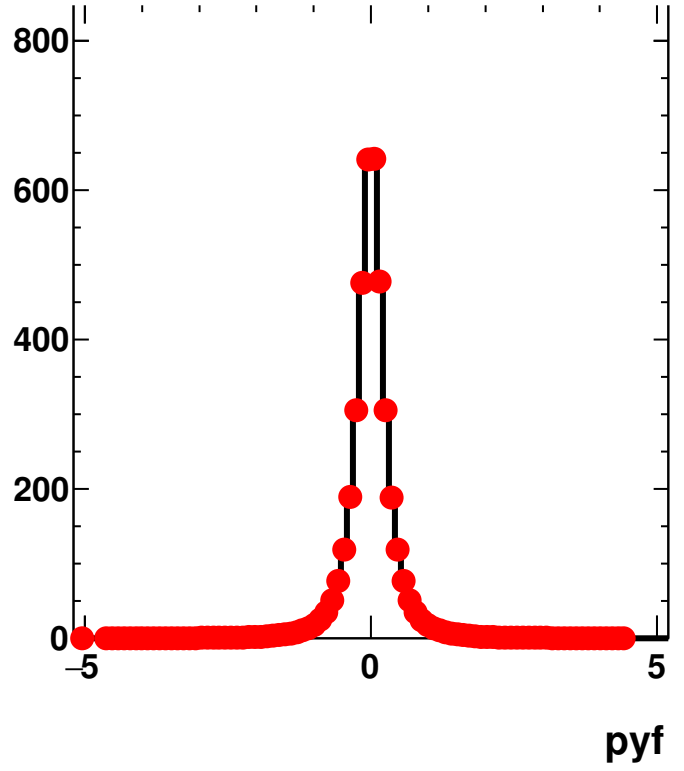
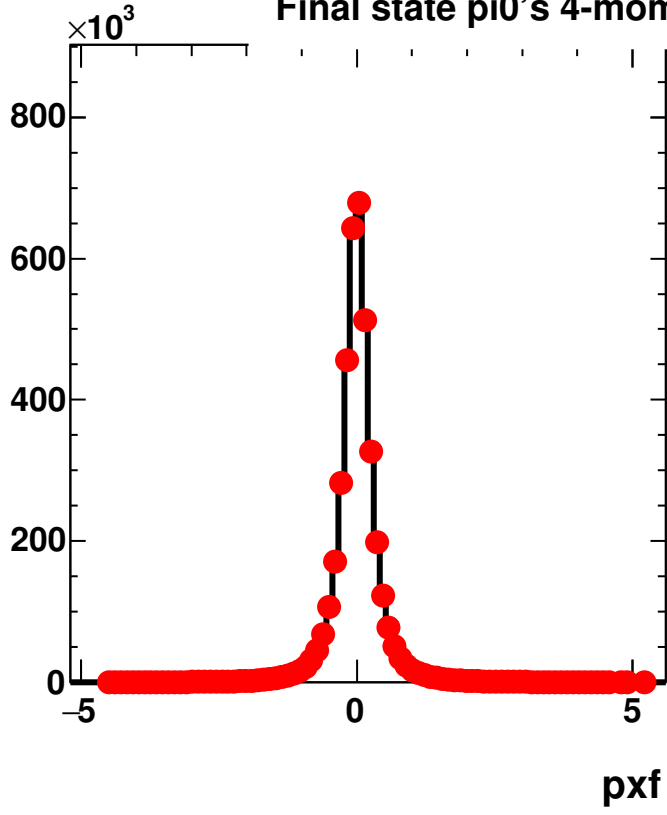
Final state protons 4-momentum / DIS only



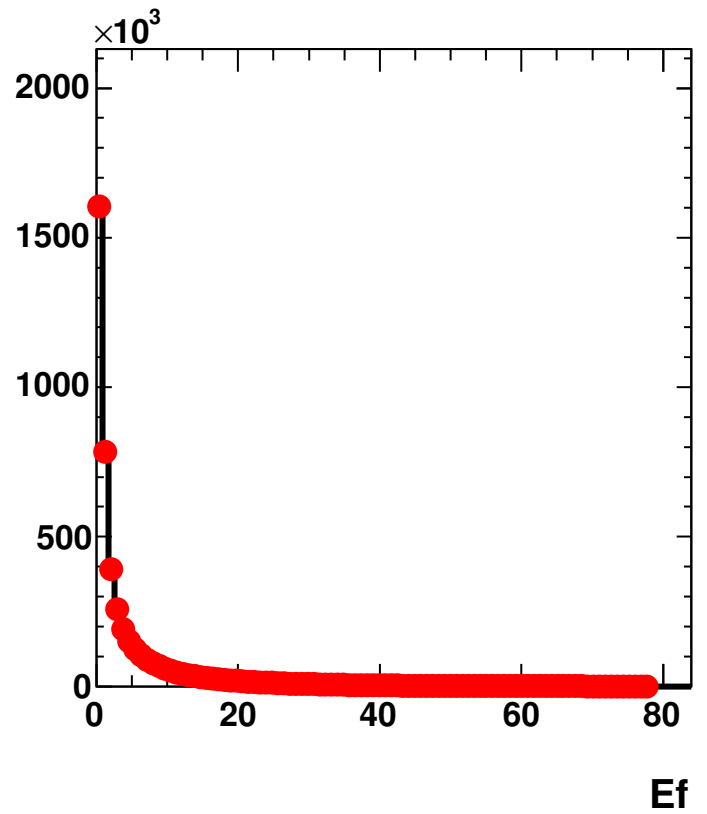
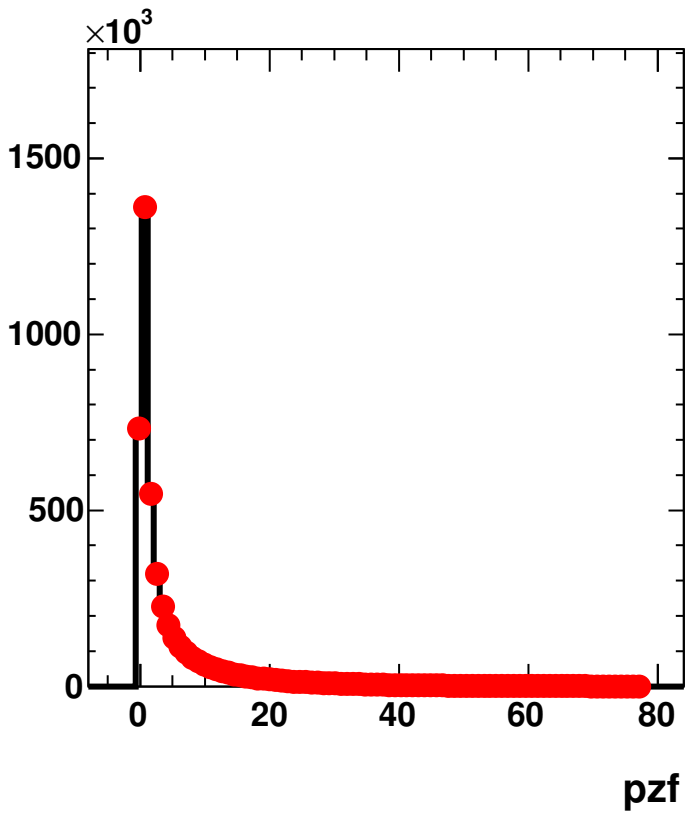
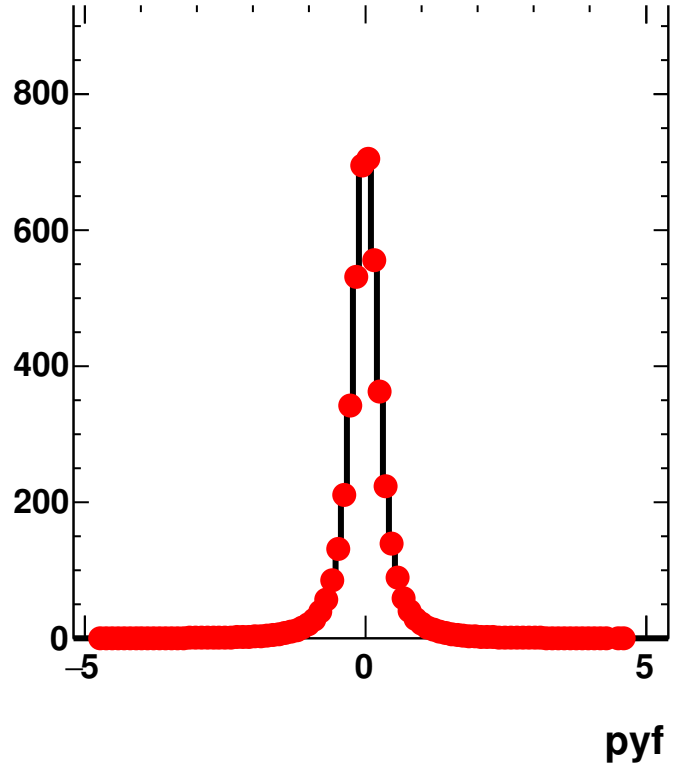
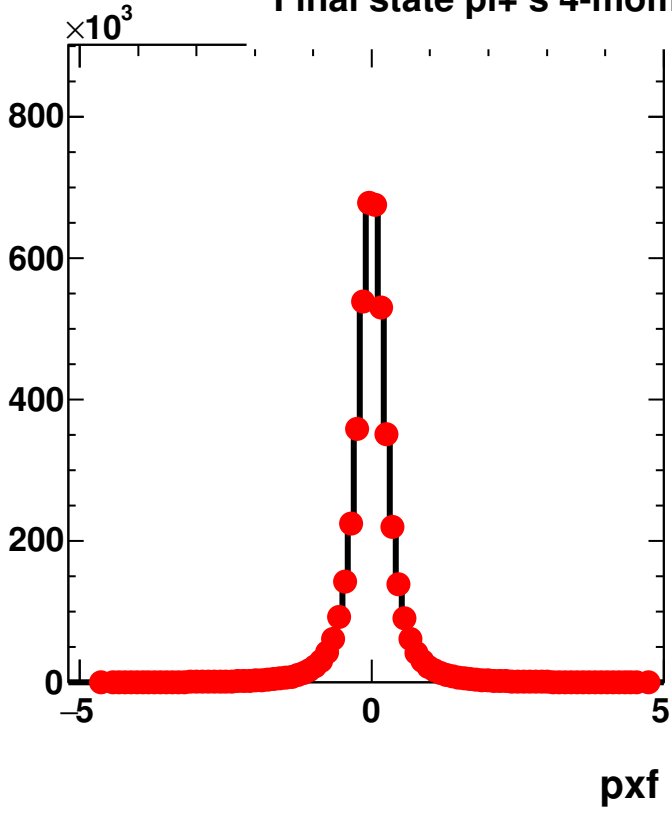
Final state neutrons 4-momentum / DIS only



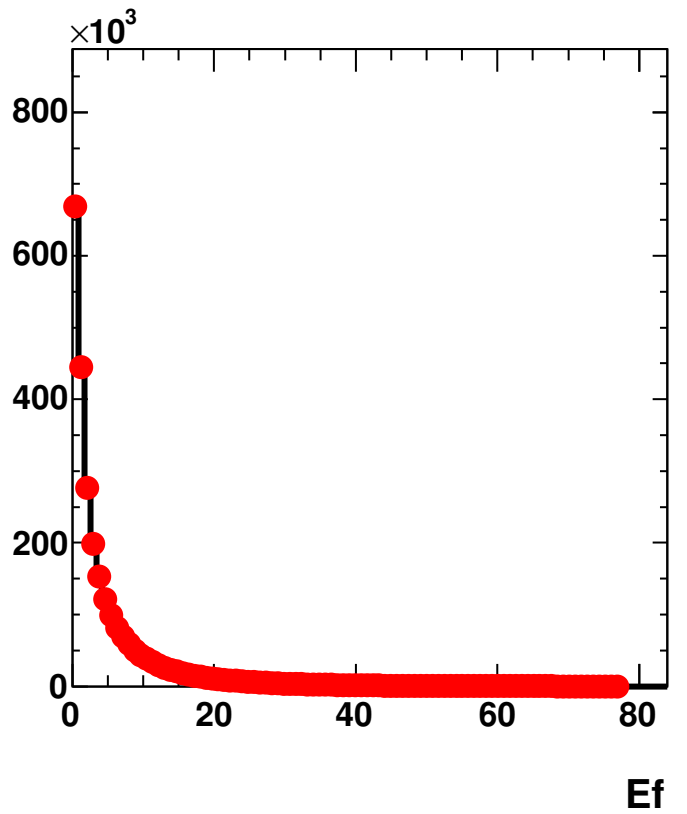
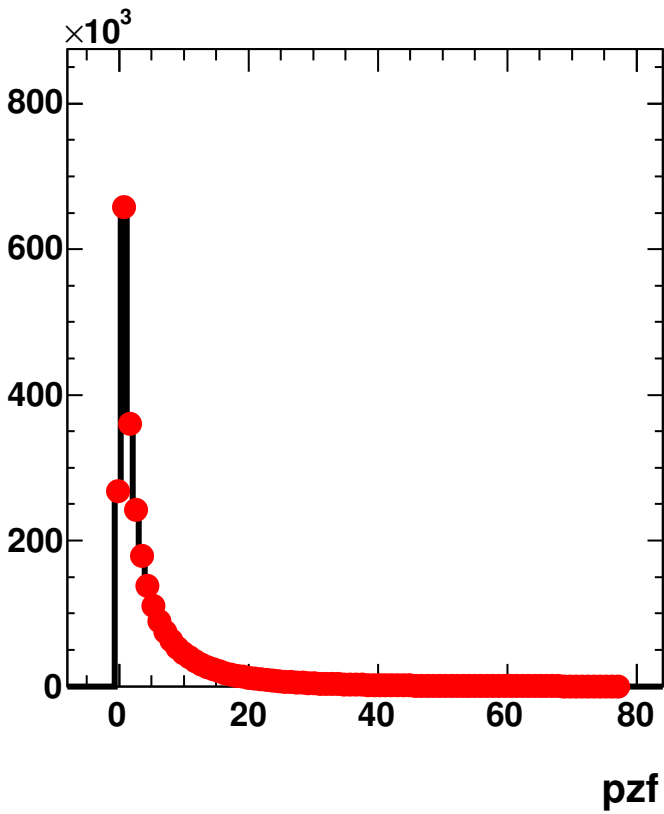
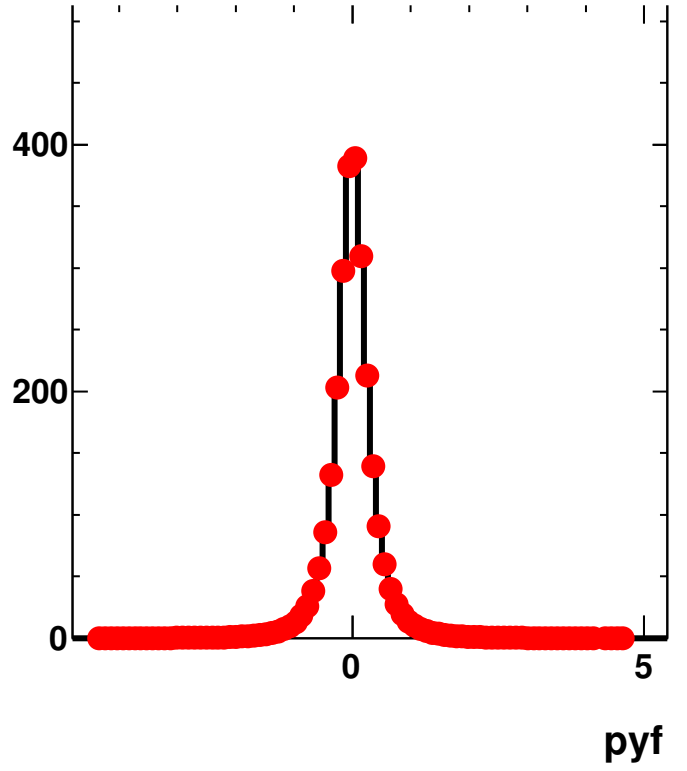
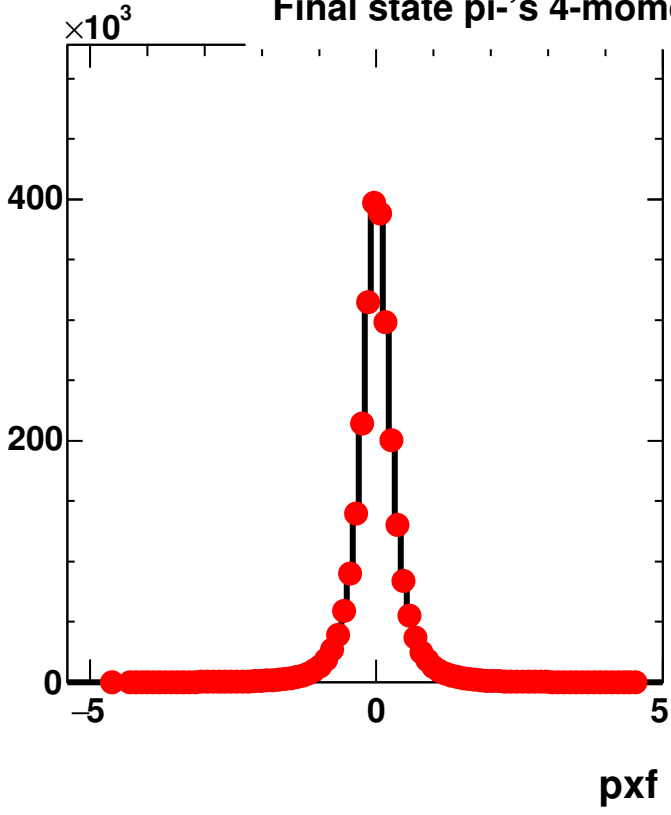
Final state pi0's 4-momentum / DIS only



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



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

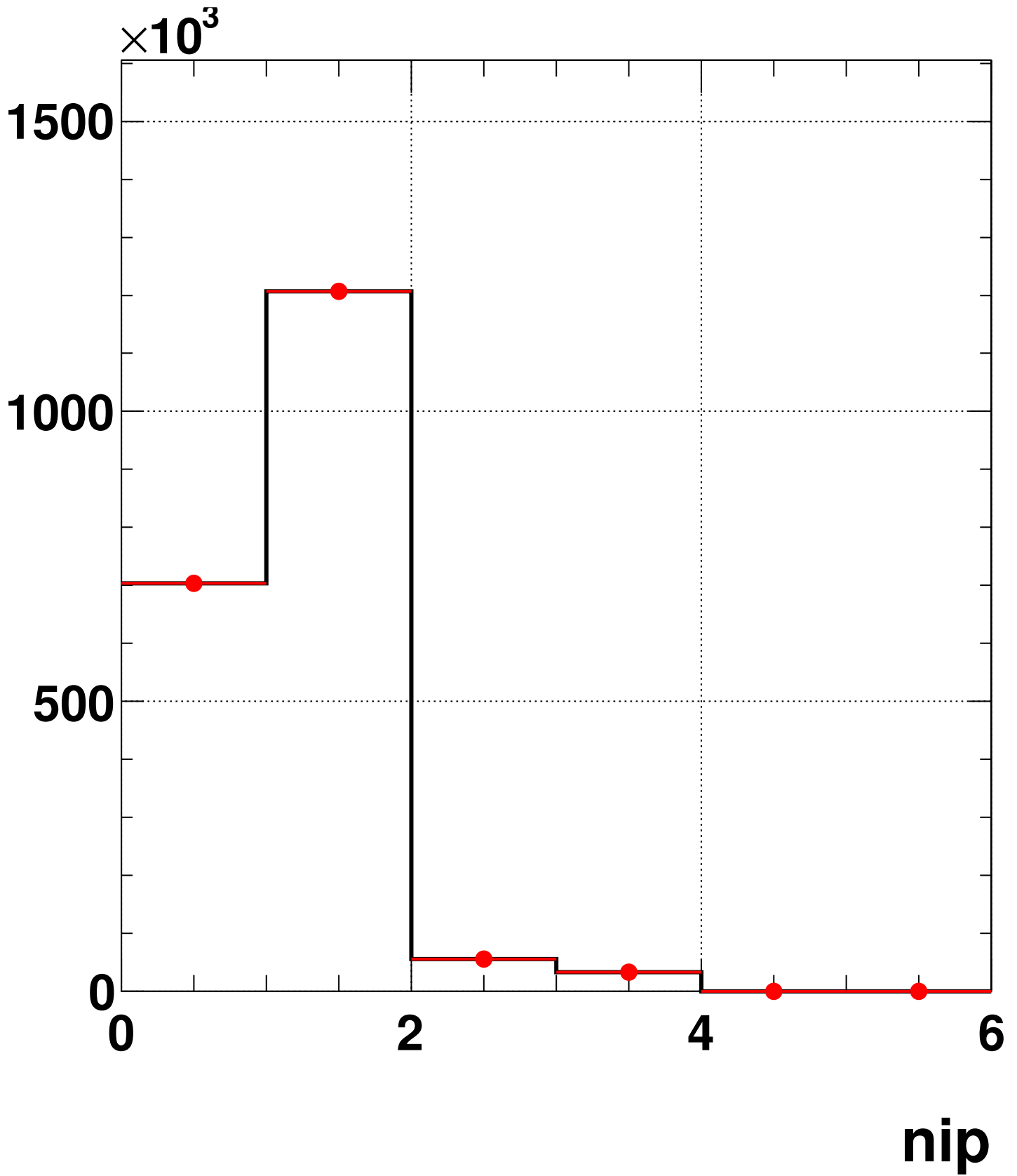


**Primary Hadronic System
Multiplicities and 4-Momenta**

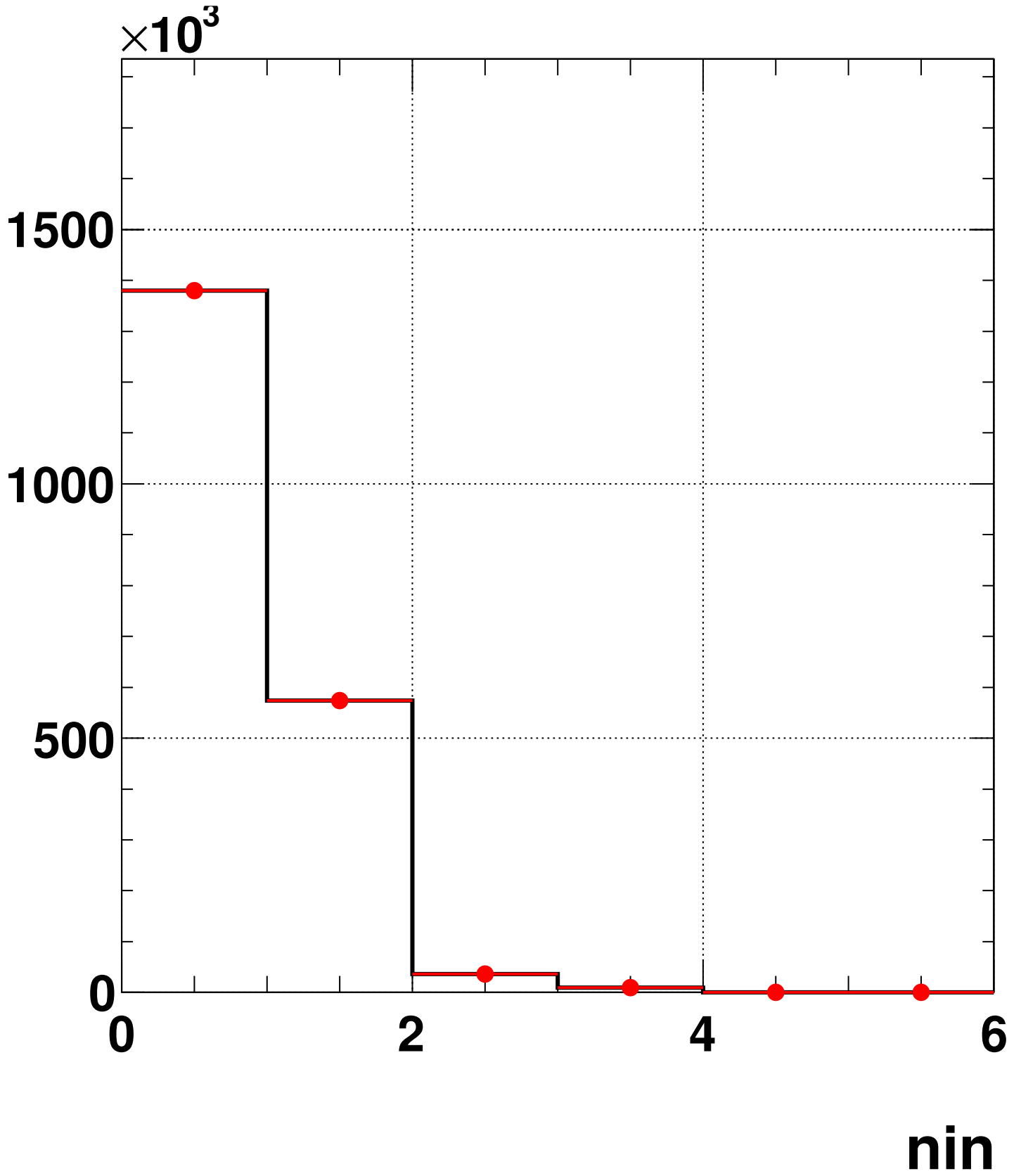
Note:

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

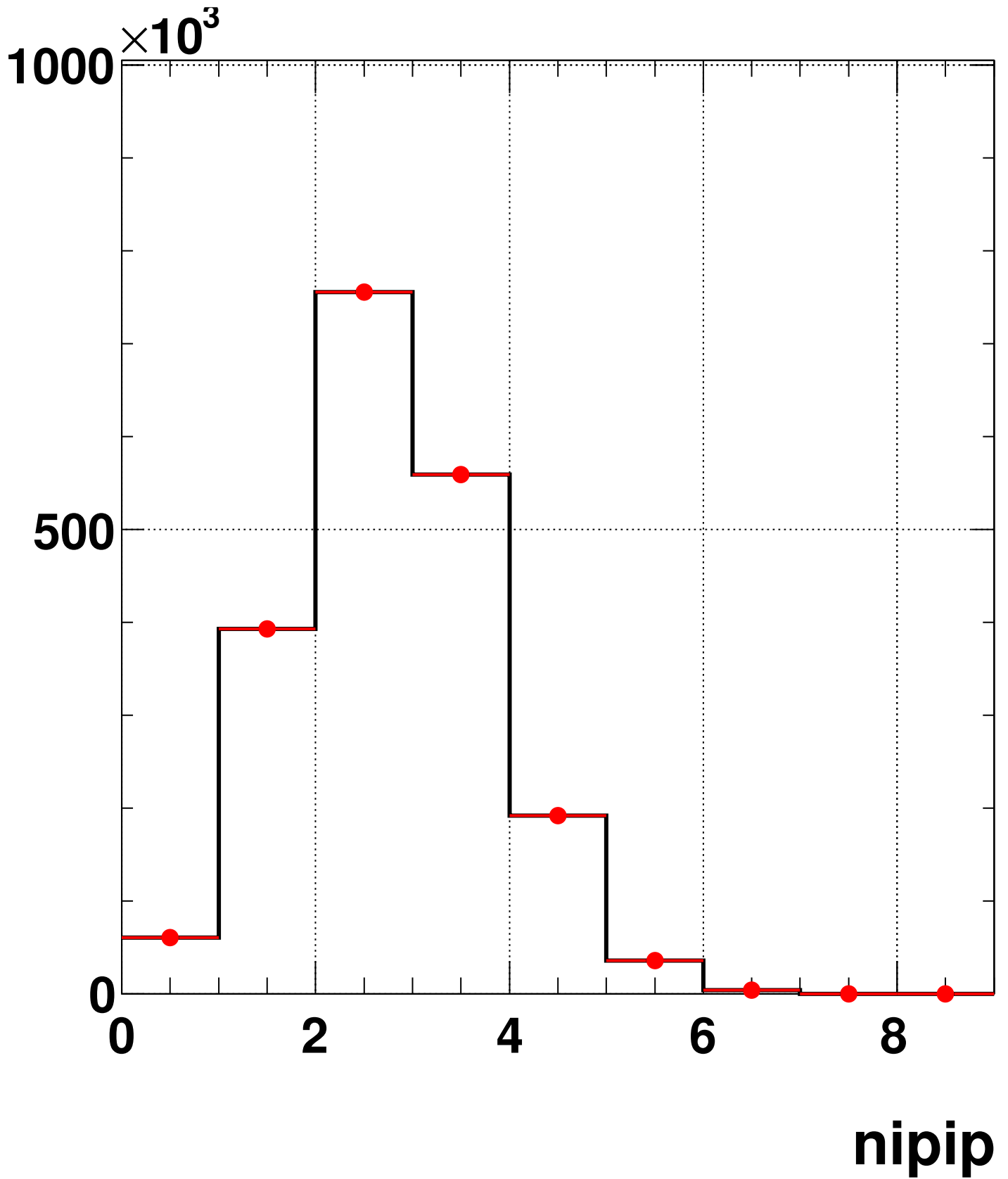
Primary Hadronic System: Number of protons



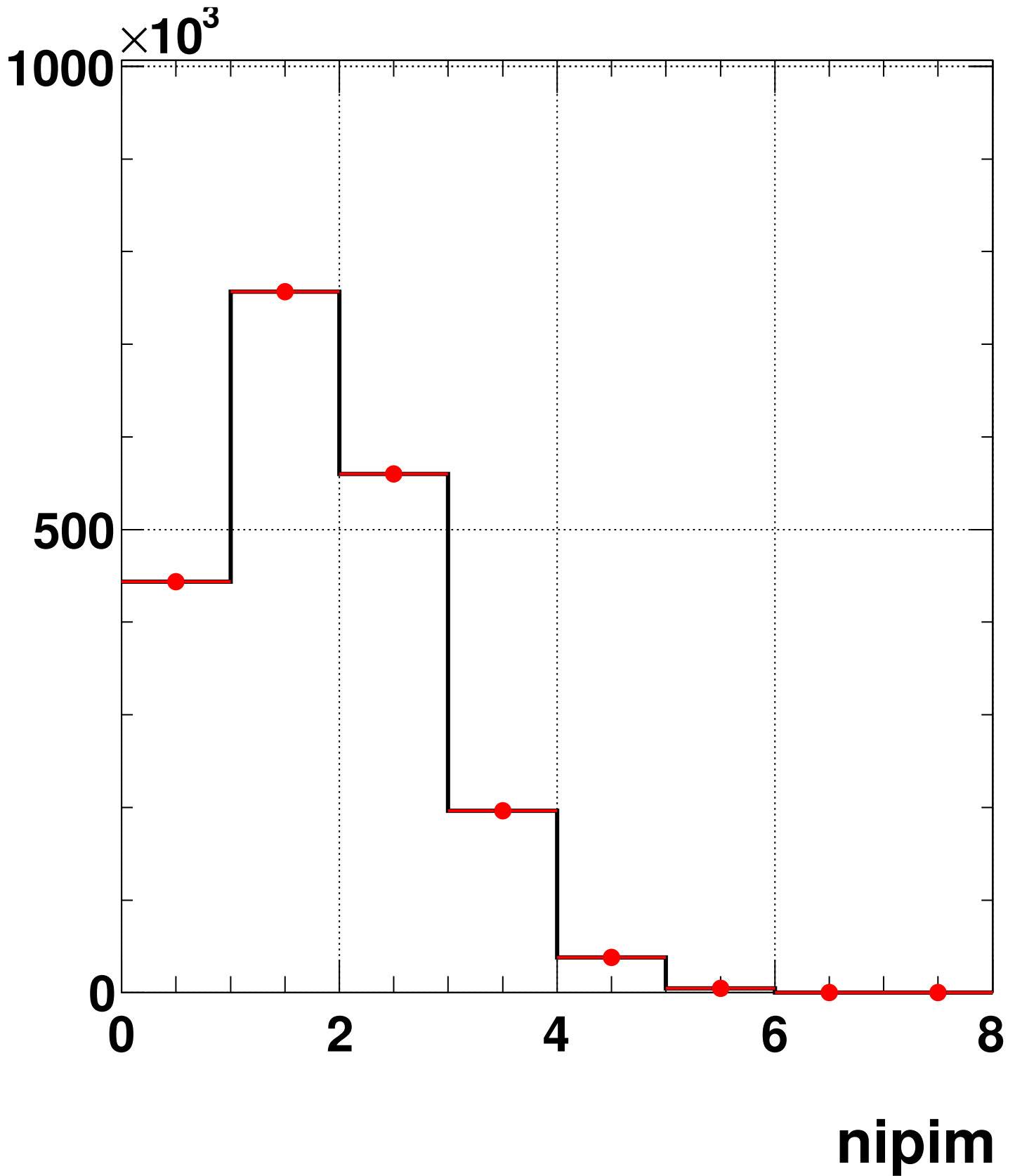
Primary Hadronic System: Number of neutrons



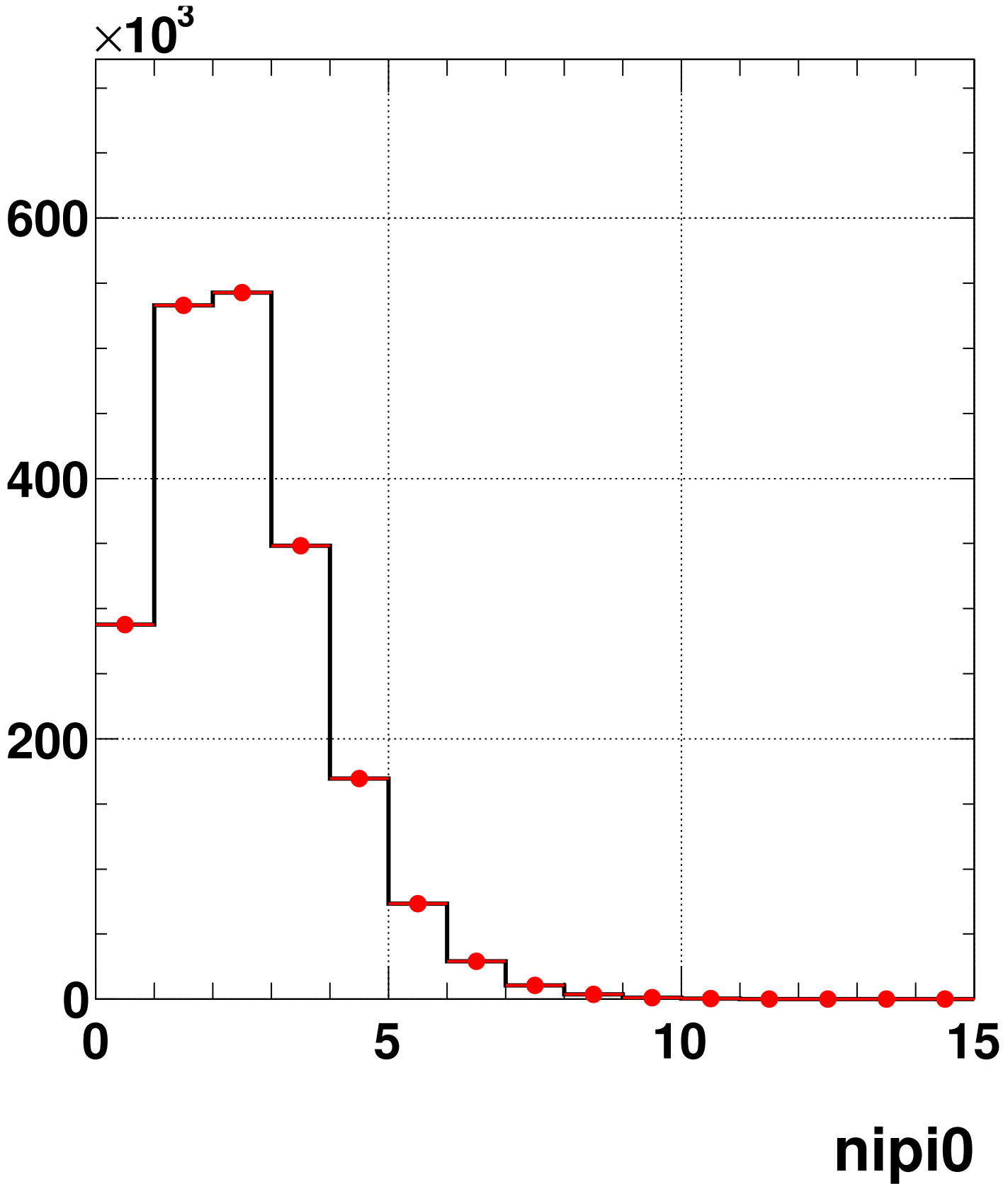
Primary Hadronic System: Number of pi+



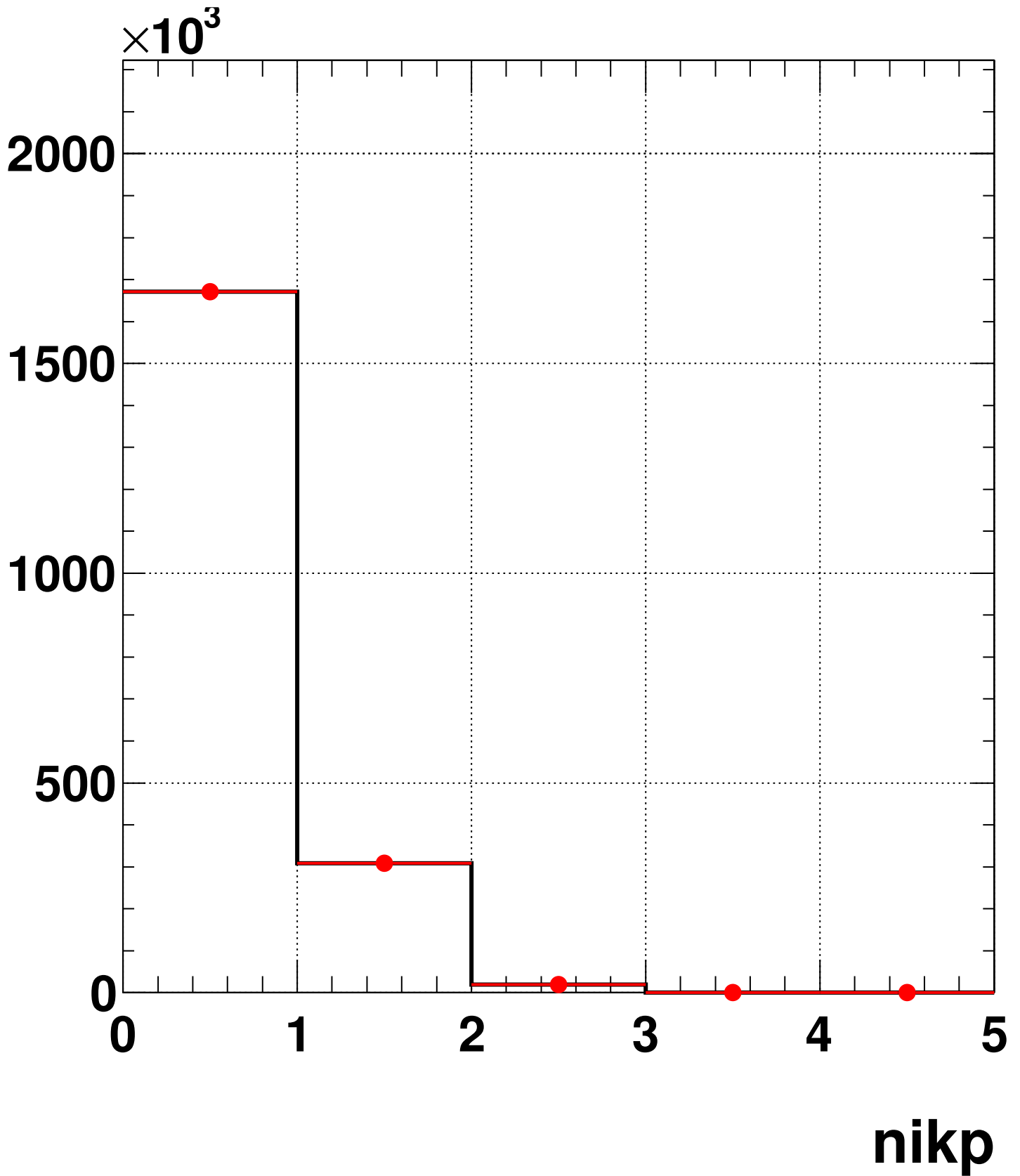
Primary Hadronic System: Number of pi-



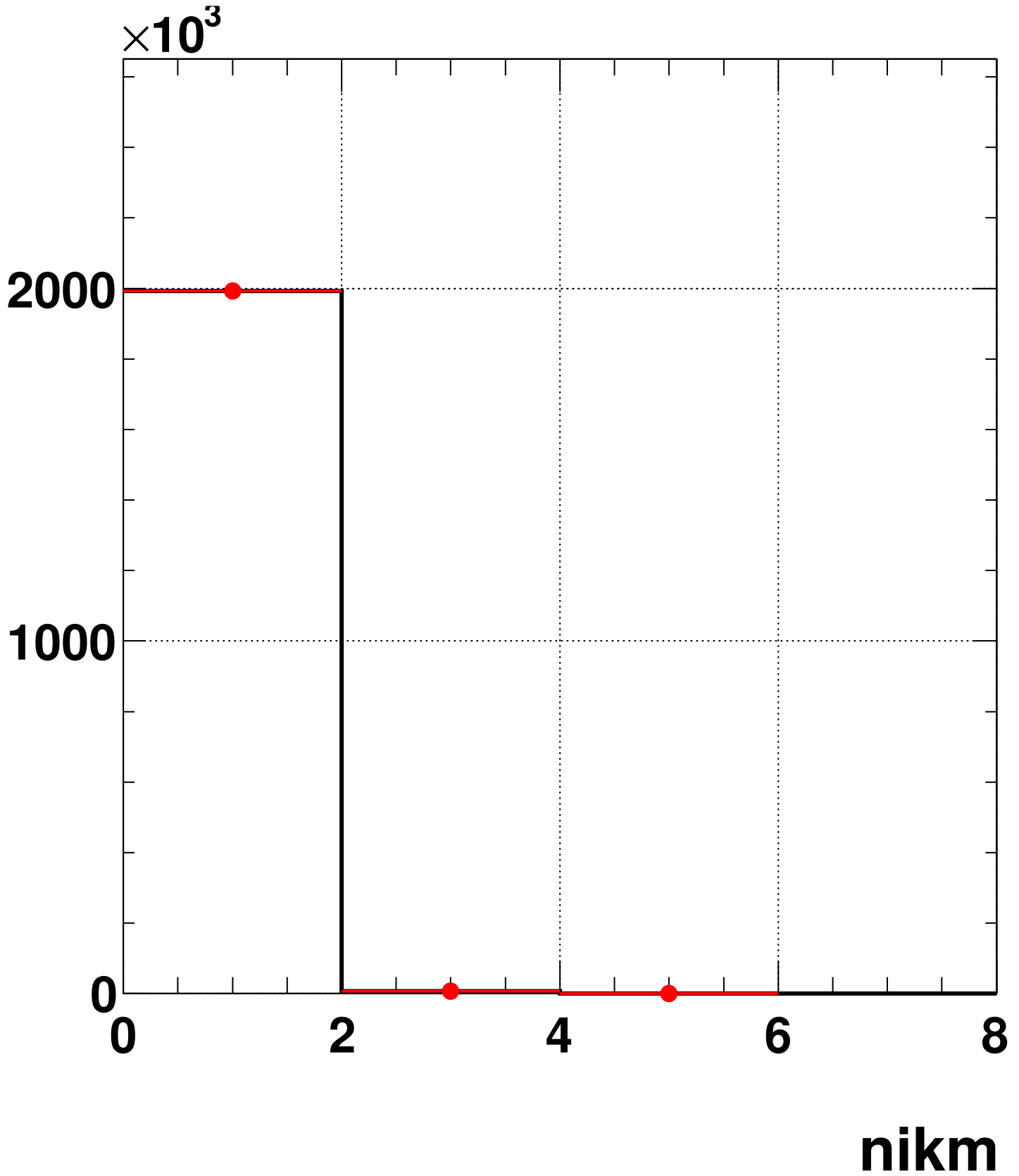
Primary Hadronic System: Number of pi0



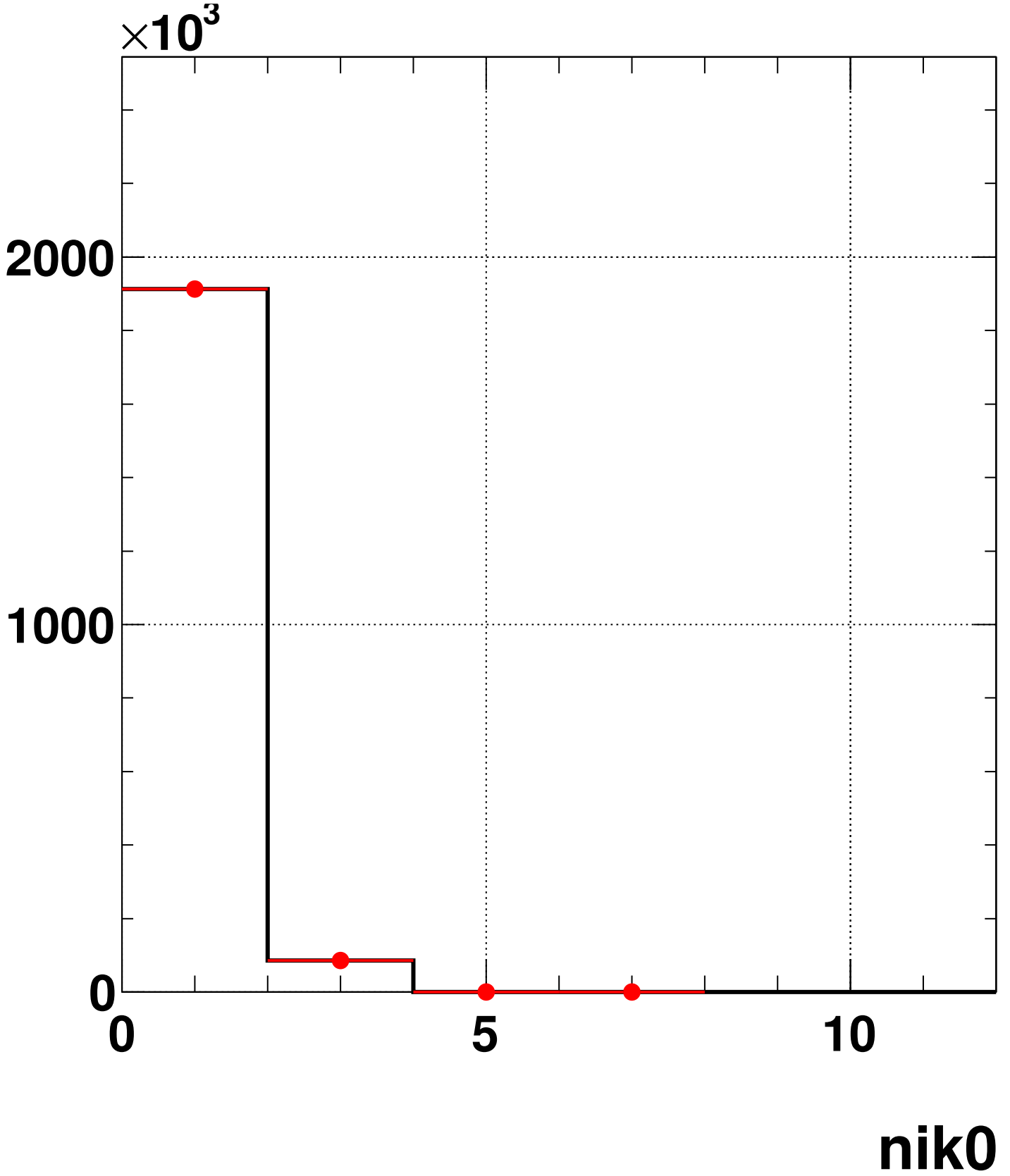
Primary Hadronic System: Number of K⁺



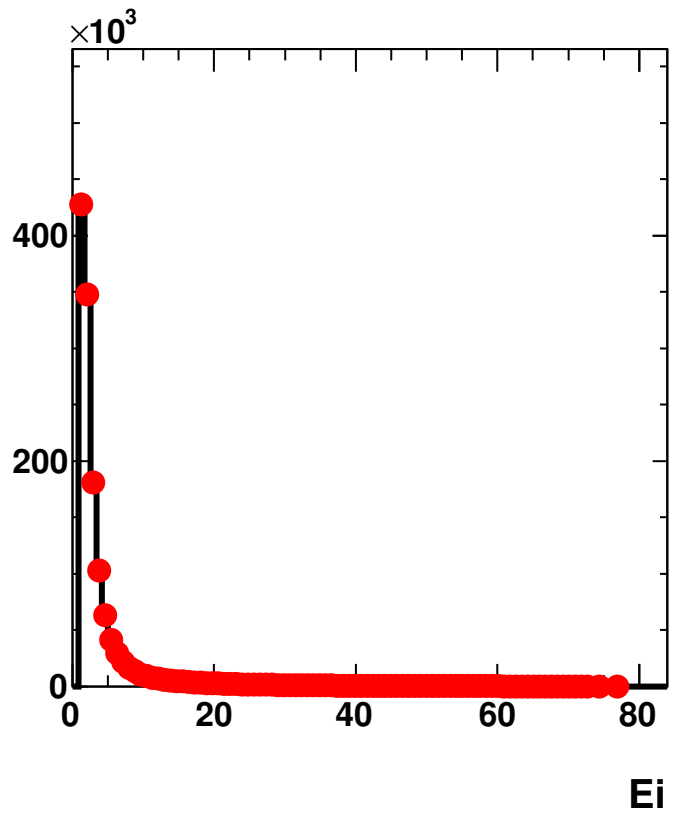
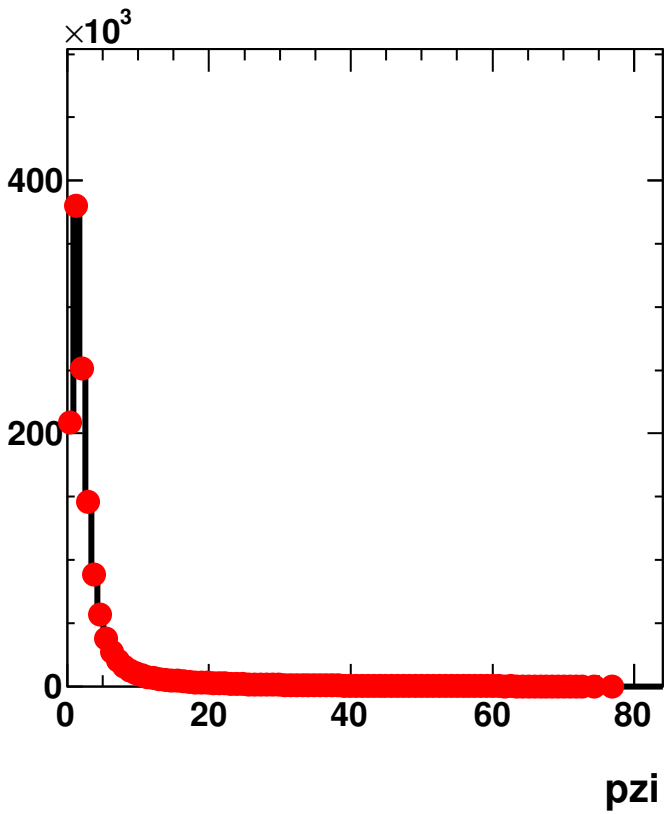
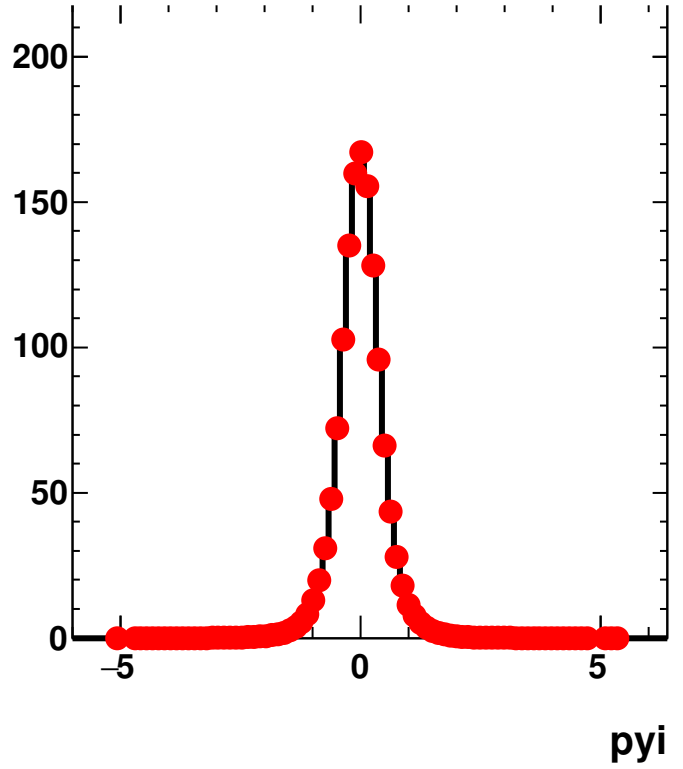
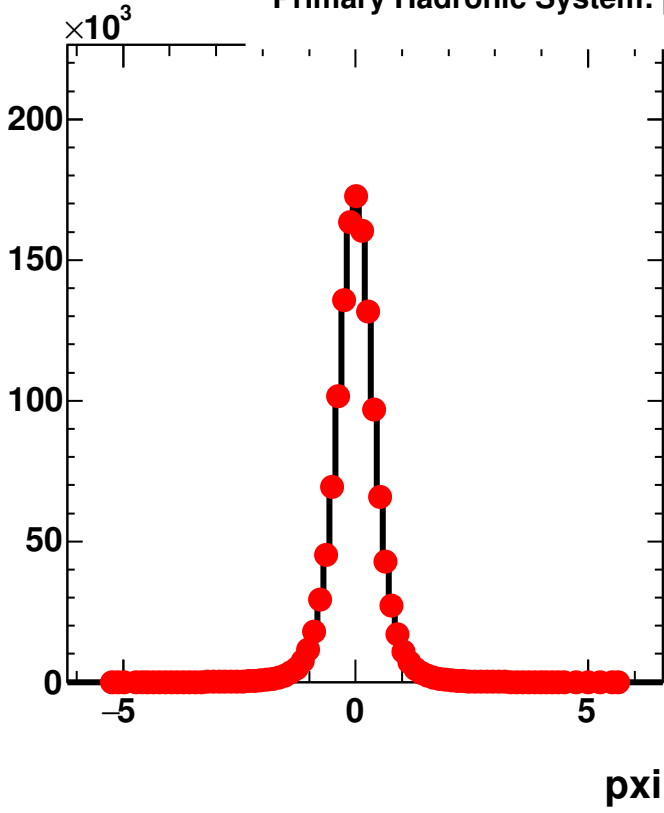
Primary Hadronic System: Number of K-



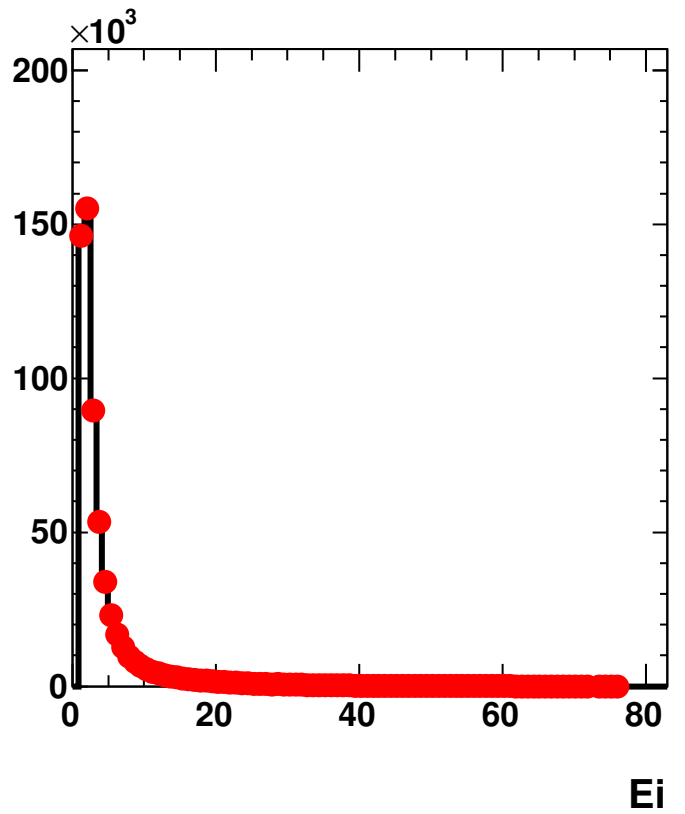
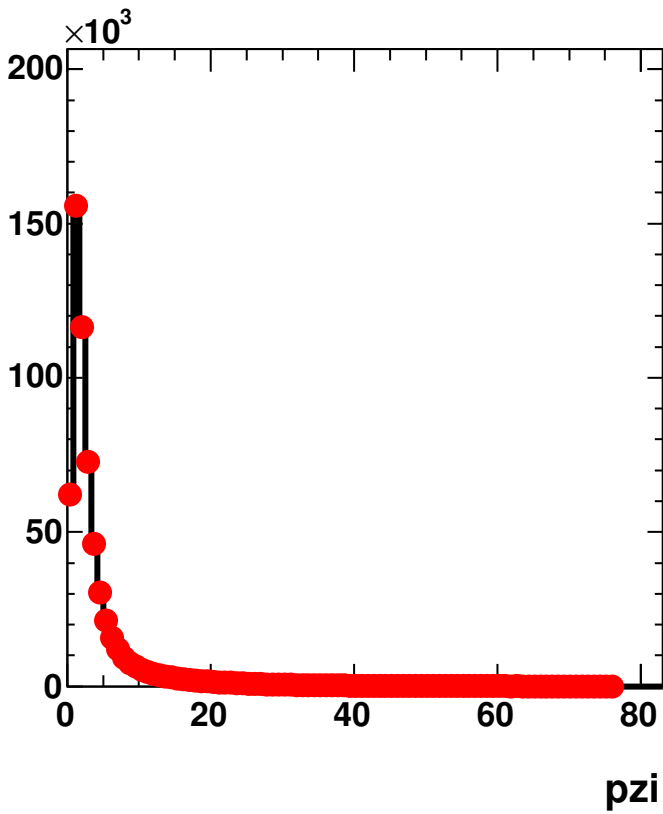
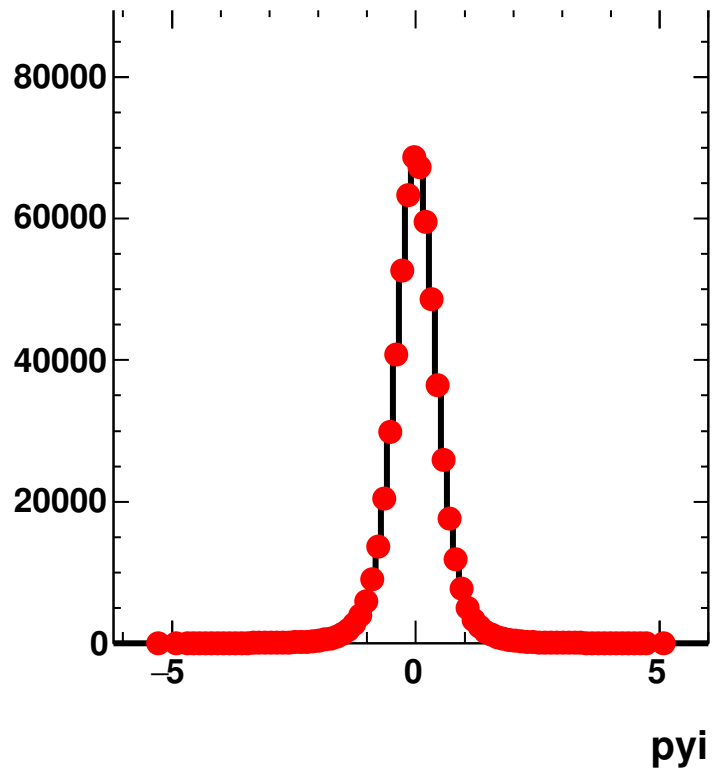
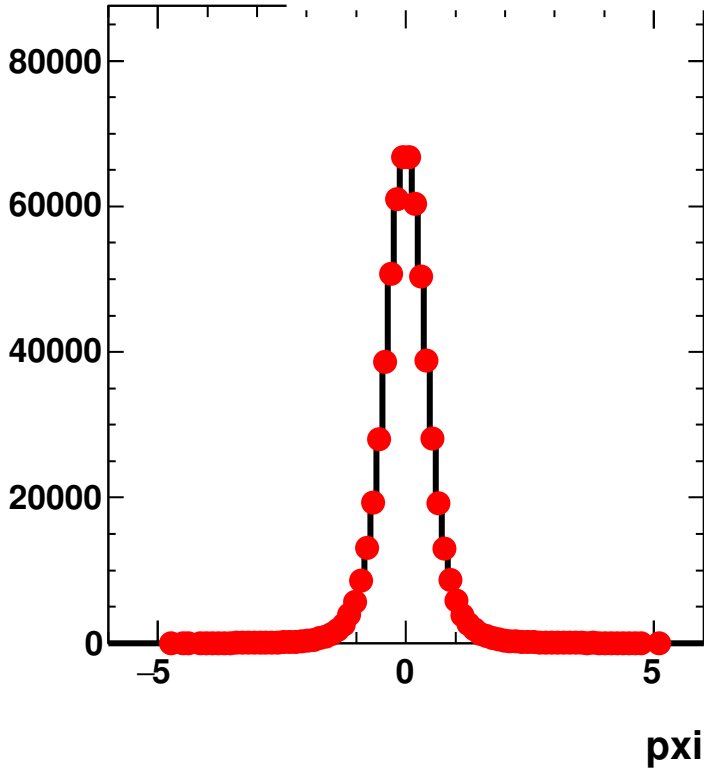
Primary Hadronic System: Number of K0



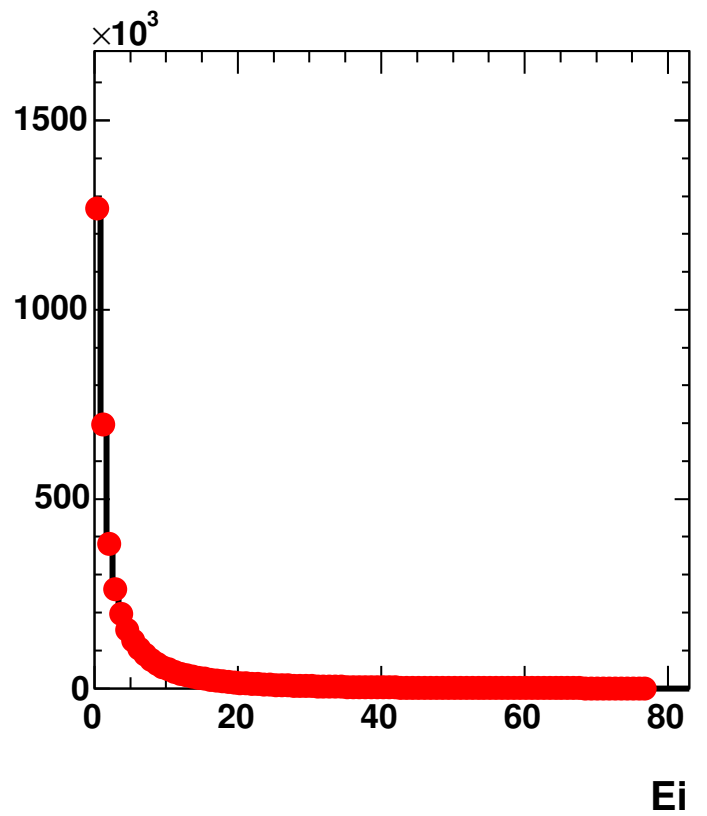
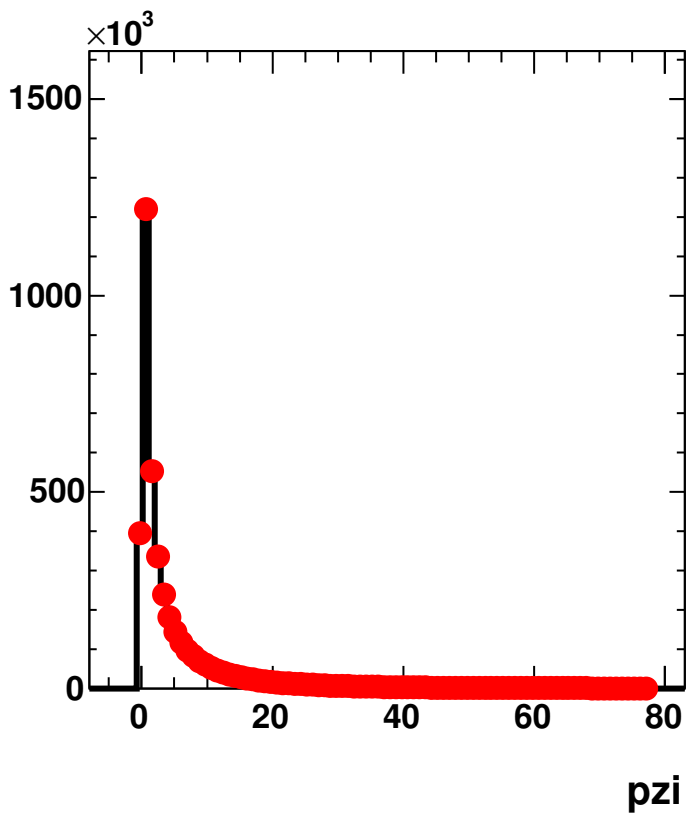
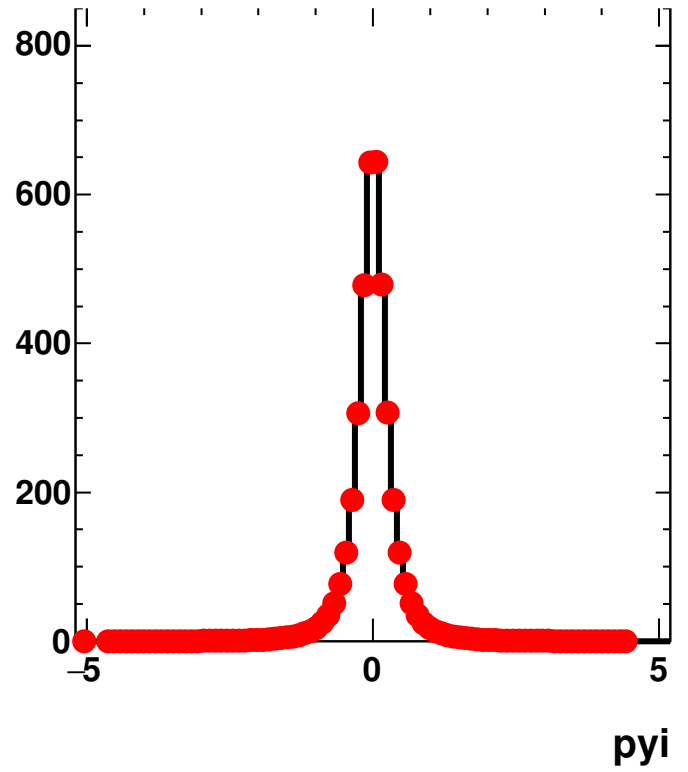
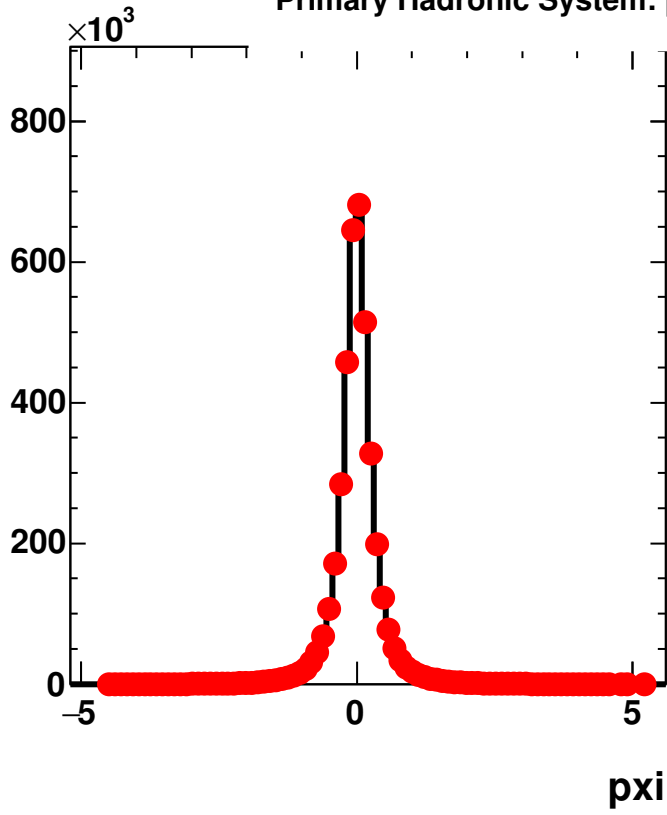
Primary Hadronic System: proton 4-momentum



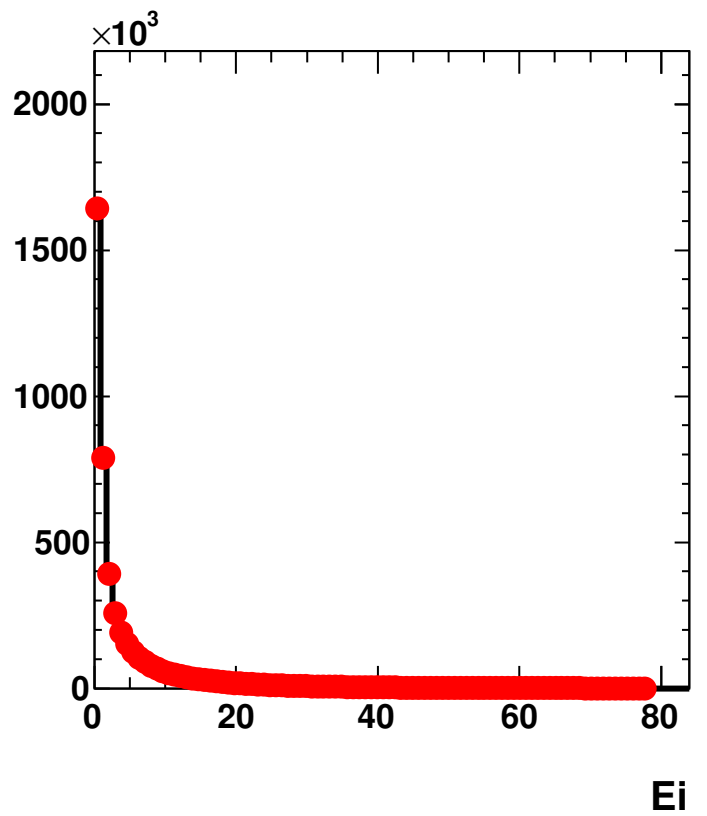
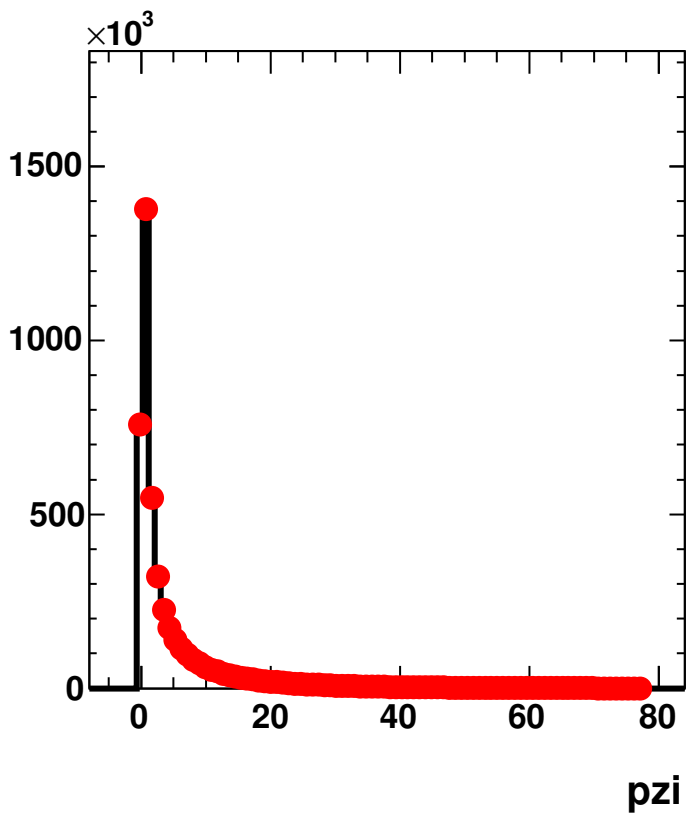
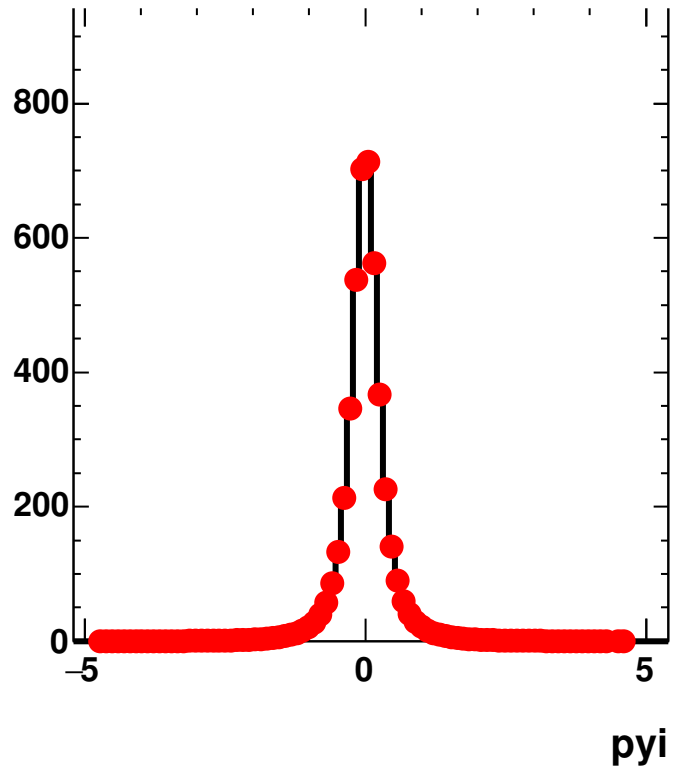
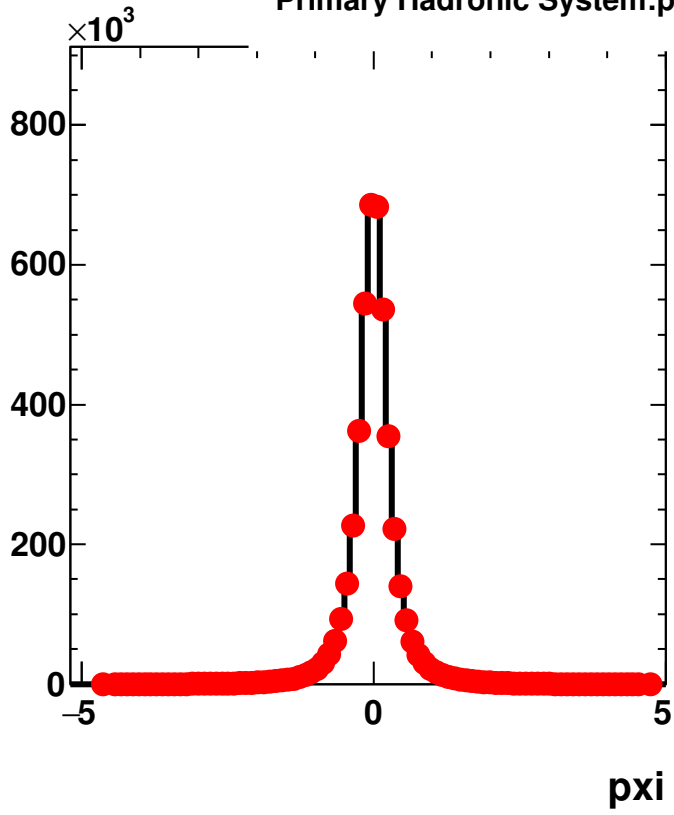
Primary Hadronic System: neutron 4-momentum



Primary Hadronic System: pi0's 4-momentum



Primary Hadronic System: pi+'s 4-momentum



Primary Hadronic System: pi-'s 4-momentum

