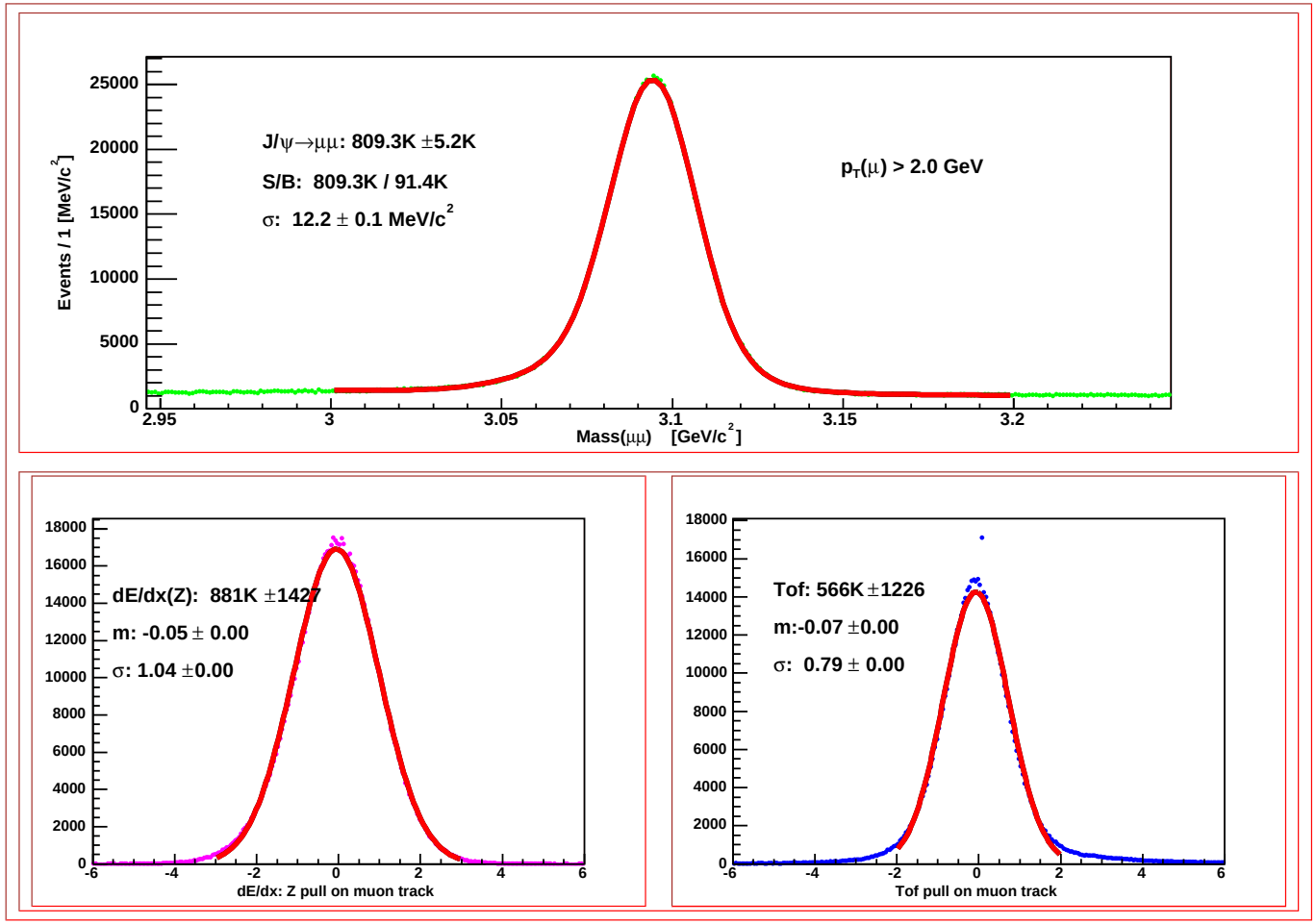
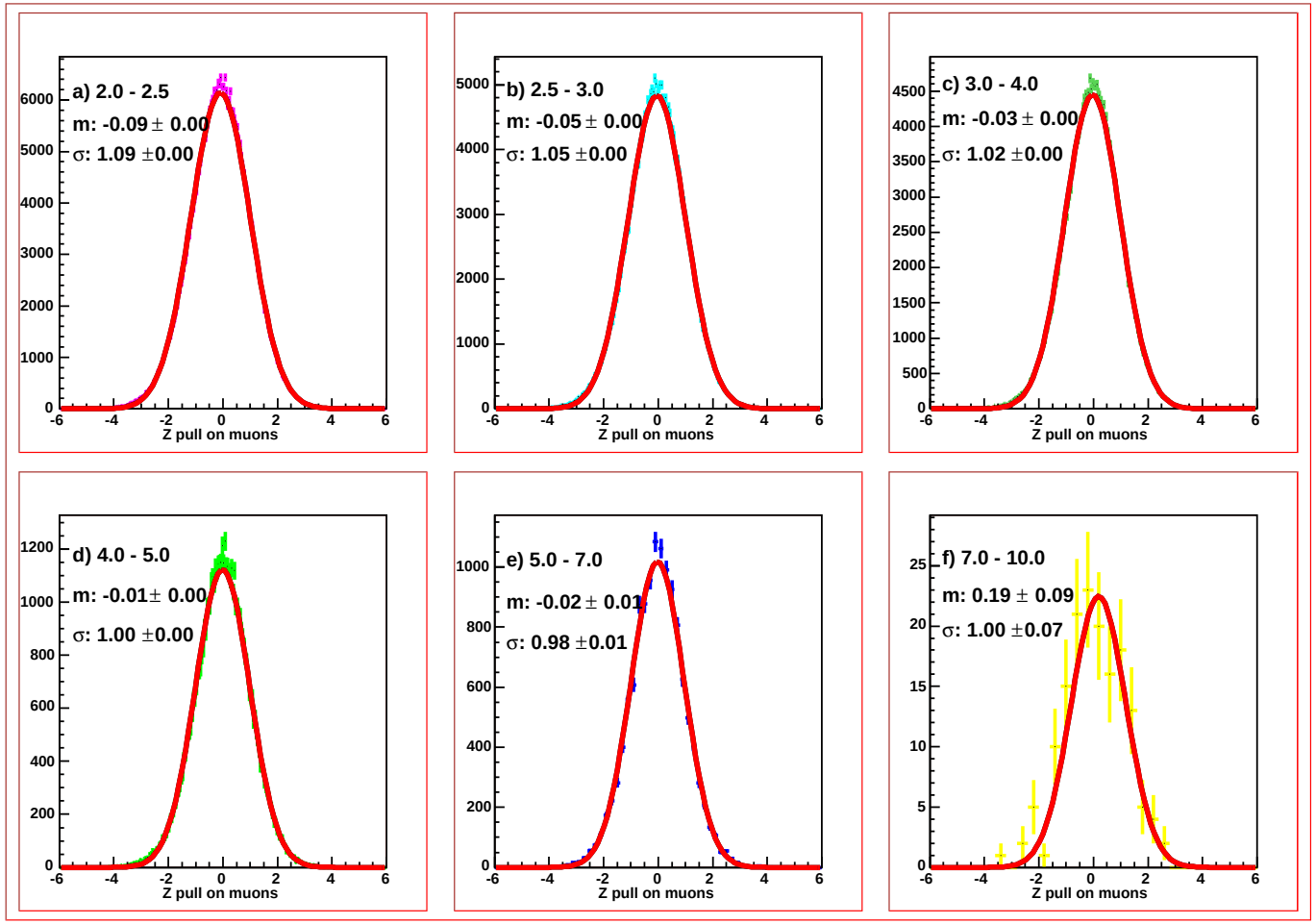
muons



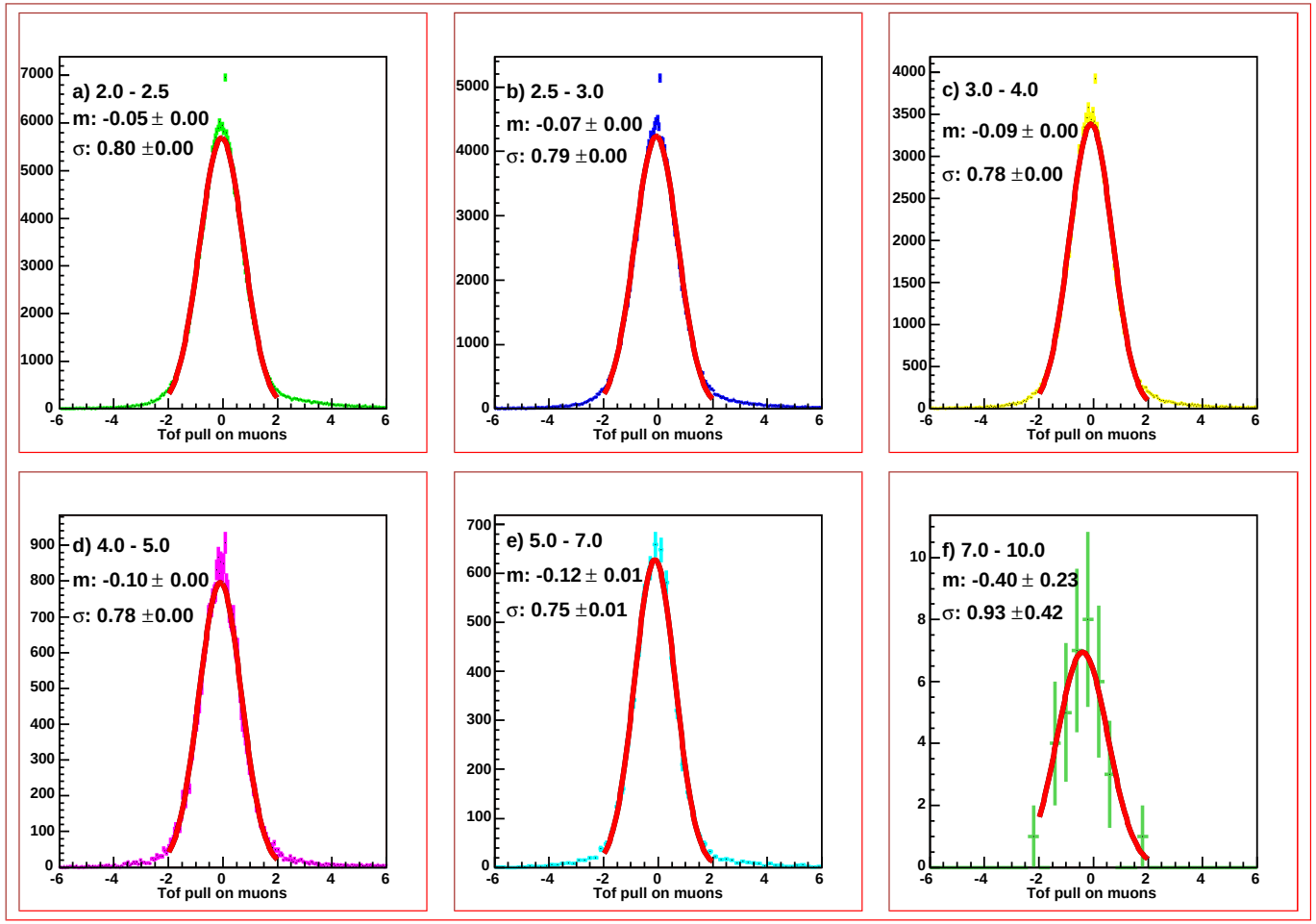
Top: $\mu\mu$ mass distribution. Data: $J/\psi \to \mu\mu$ (xpmm0d) dataset. Software 5.3.3. Bottom left: dE/dx Z pull on muon tracks. Bottom right: Tof pull on muon tracks. Cut for pulls: $|\Delta M_{J/\psi}| < 3\sigma$.

$dE/dx(\mu)$: momentum bins



The dE/dx(Z) pull distributions on muon momentum bins: a)2-2.5, b)2.5-3, c)3-4, d)4-5, e)5-7 and f)7-10 GeV/c. Data: $J/\psi \to \mu\mu$ (xpmm0d) dataset. Software 5.3.3. Cut for pulls: $|\Delta M_{J/\psi}| < 3\sigma$.

$Tof(\mu)$: momentum bins



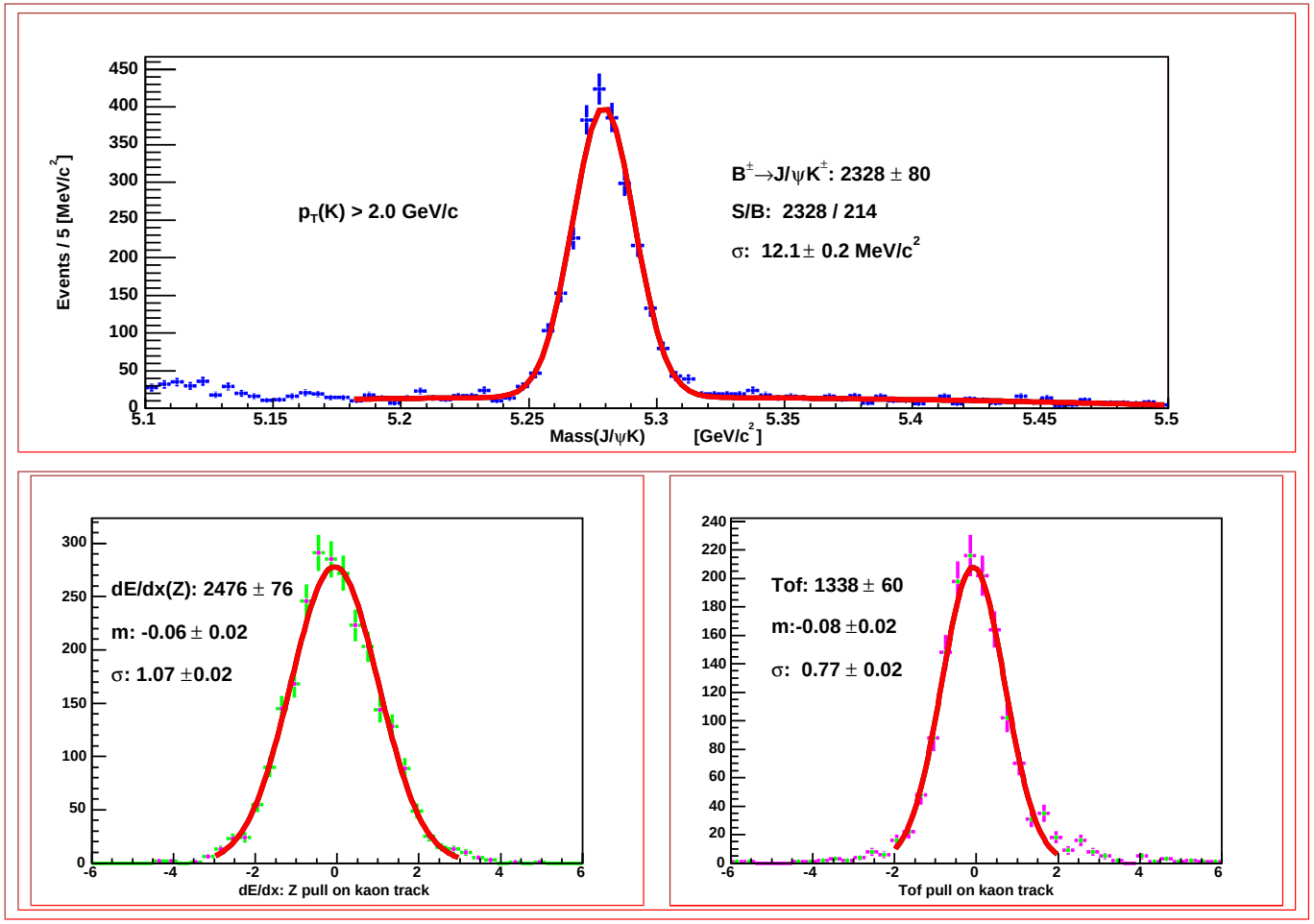
The Tof pull distributions on muon momentum bins: a)2-2.5, b)2.5-3, c)3-4, d)4-5, e)5-7 and f)7-10 GeV/c. Data: $J/\psi \to \mu\mu$ (xpmm0d) dataset. Software 5.3.3. Cut for pulls: $|\Delta M_{J/\psi}| < 3\sigma$.

muon momentum bins, cont

momentum	$mean(dE/dx)$	$\sigma(dE/dx)$	$mean(Tof)$	$\sigma(Tof)$
$2.0-2.5$	-0.09±0.00	1.09±0.00	-0.05±0.00	0.80±0.00
$2.5-3.0$	-0.05±0.00	1.05±0.00	-0.07±0.00	0.79±0.00
$3.0-4.0$	-0.03±0.00	1.02±0.00	-0.09±0.00	0.78±0.00
$4.0-5.0$	-0.01±0.00	1.00±0.00	-0.10±0.00	0.78±0.00
$5.0-7.0$	-0.02±0.01	0.98±0.01	-0.12±0.01	0.75±0.01
$7.0-10.0$	0.19±0.09	1.00±0.07	-0.40±0.23	0.93±0.42

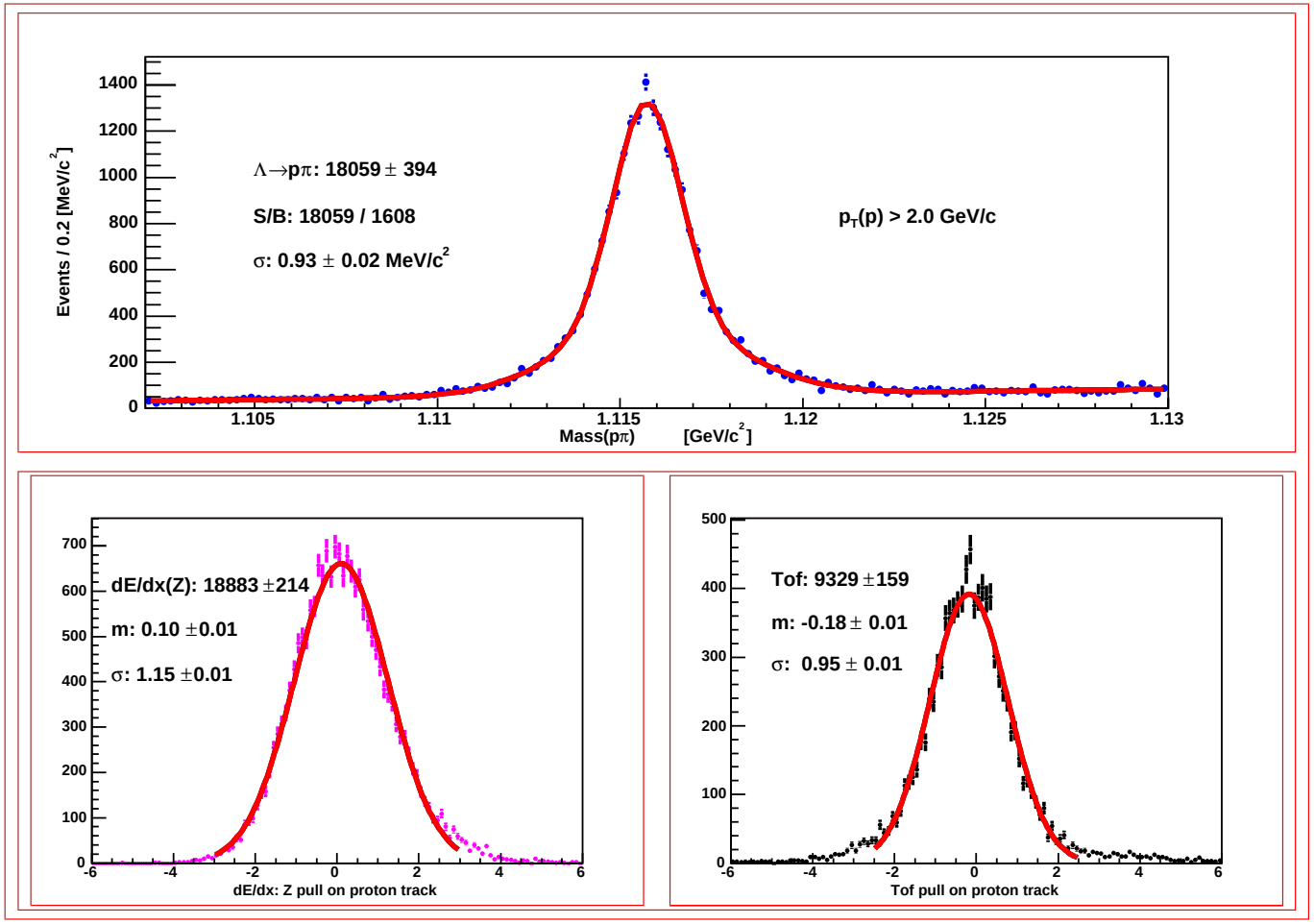
Table 1: dE/dx and Tof pulls on muon momentum bins. Data: xpmm0d

kaons



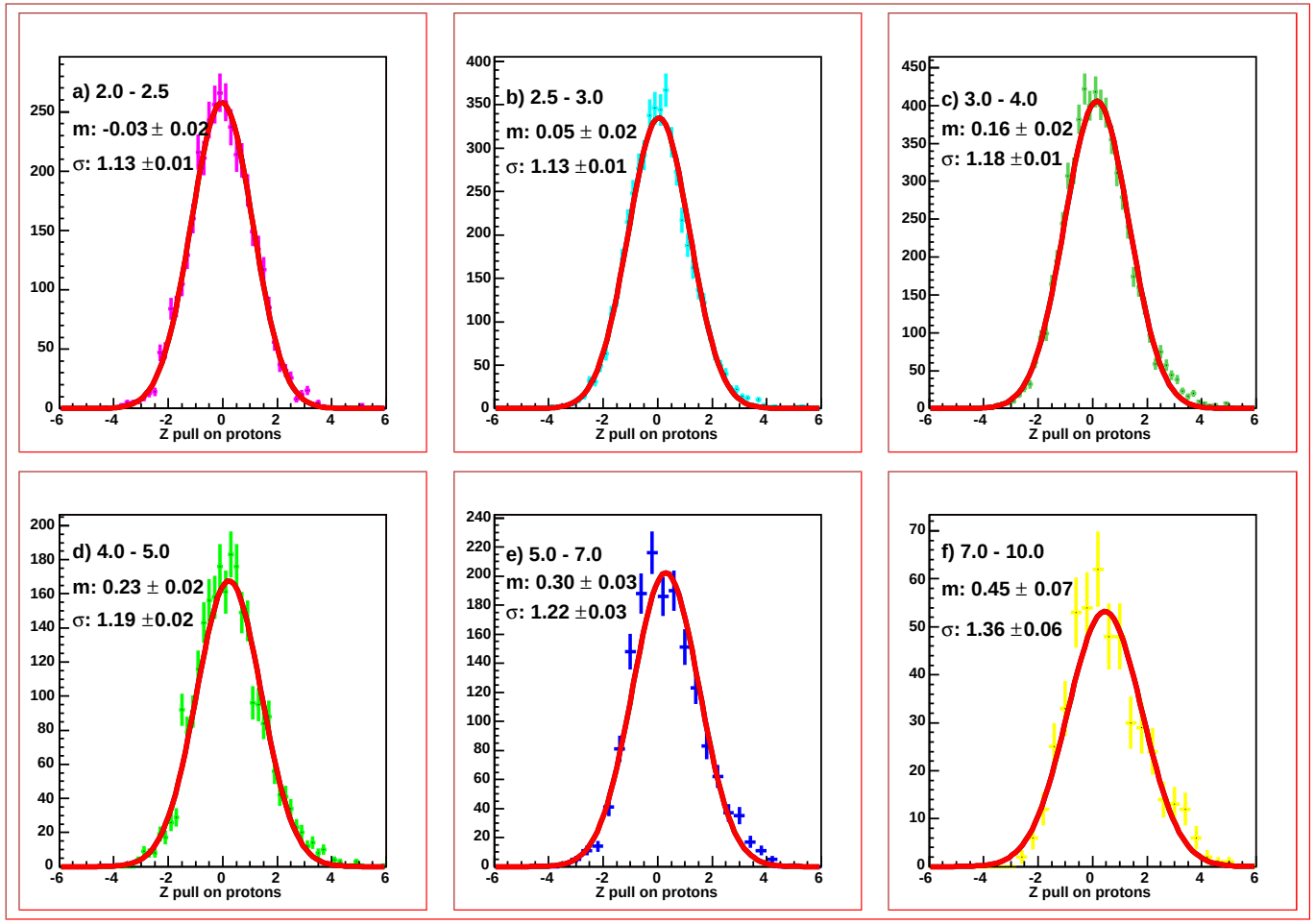
Top: $J/\psi K$ mass distribution. Data: $J/\psi \to \mu\mu$ (xpmm0d) dataset. Software 5.3.3. Bottom left: dE/dx Z pull on kaon tracks. Bottom right: Tof pull on kaon tracks. Cut for pulls: $|\Delta M_{B^+}| < 3\sigma$.

protons



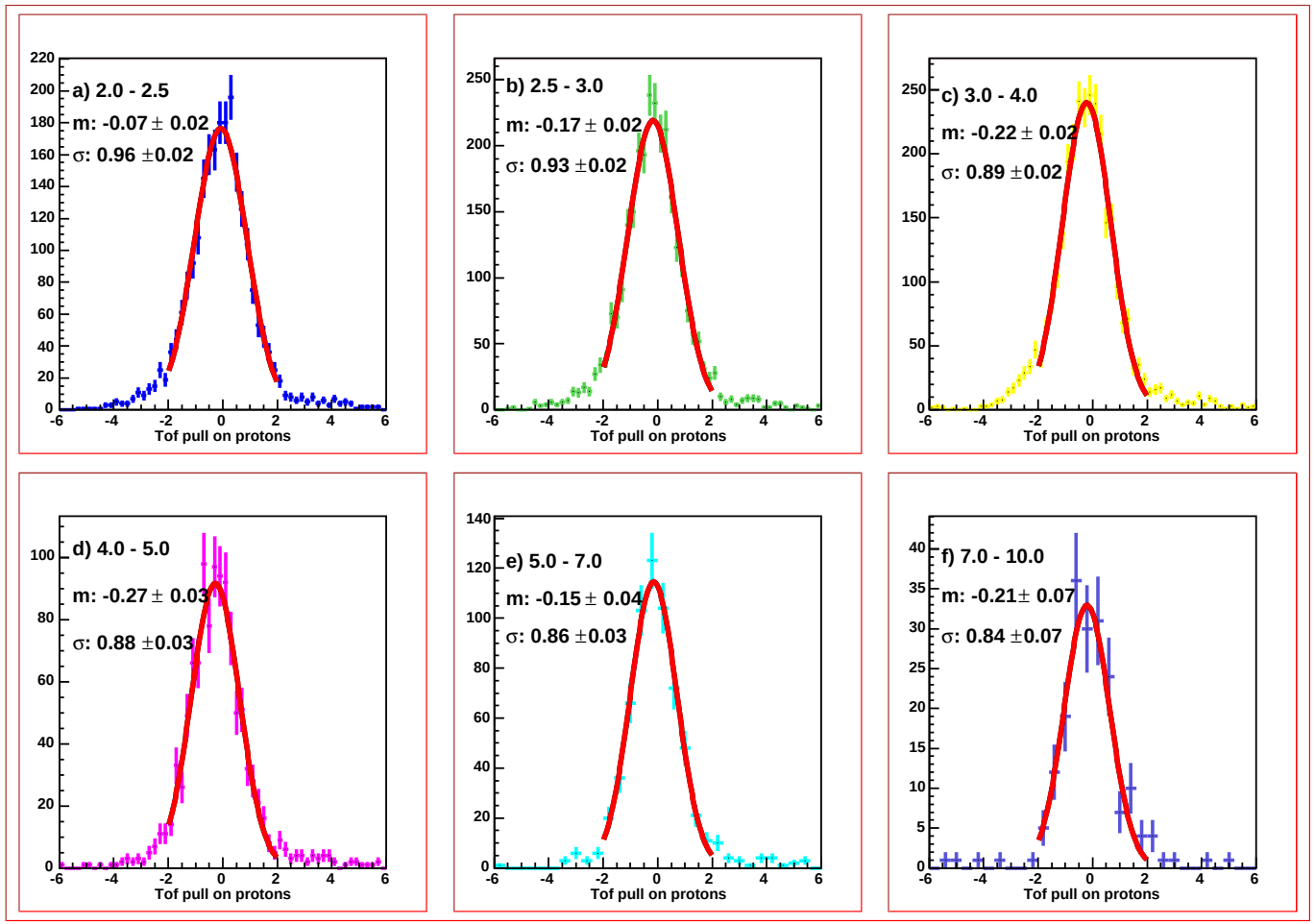
Top: $p\pi$ mass distribution. Data: $J/\psi \to \mu\mu$ (xpmm0d) dataset. Software 5.3.3. Bottom left: dE/dx pull on proton tracks. Bottom right: Tof pull on proton tracks. Cut for pulls: $|\Delta M_\Lambda| < 3\sigma$.

$dE/dx(p/\bar{p})$: momentum bins



The dE/dx(Z) pull distributions on $p/\bar{p}$ momentum bins: a)2-2.5, b)2.5-3, c)3-4, d)4-5, e)5-7 and f)7-10 GeV/c. Data: $J/\psi \to \mu\mu$ (xpmm0d) dataset. Software 5.3.3. Cut for pulls: $|\Delta M_\Lambda| < 3\sigma$.

$Tof(p/\bar{p})$: momentum bins



The Tof pull distributions on $p/\bar{p}$ momentum bins: a)2-2.5, b)2.5-3, c)3-4, d)4-5, e)5-7 and f)7-10 GeV/c. Data: $J/\psi \to \mu\mu$ (xpmm0d) dataset. Software 5.3.3. Cut for pulls: $|\Delta M_\Lambda| < 3\sigma$.

$p/\bar{p}$ momentum bins, cont

momentum	$mean(dE/dx)$	$\sigma(dE/dx)$	$mean(Tof)$	$\sigma(Tof)$
$2.0-2.5$	-0.03±0.02	1.13±0.01	-0.07±0.02	0.96±0.02
$2.5-3.0$	0.05±0.02	1.13±0.01	-0.17±0.02	0.93±0.02
$3.0-4.0$	0.16±0.02	1.18±0.01	-0.22±0.02	0.89±0.02
$4.0-5.0$	0.23±0.02	1.19±0.02	-0.27±0.03	0.88±0.03
$5.0-7.0$	0.30±0.03	1.22±0.03	-0.15±0.04	0.86±0.03
$7.0-10.0$	0.45±0.07	1.36±0.06	-0.21±0.07	0.84±0.07

Table 2: dE/dx and Tof pulls on $p/\bar{p}$ momentum bins. Data: xpmm0d

summary

	$\mu^{\pm}$	$K^{\pm}$	$p, \bar{p}$
p_T, GeV/c	≥ 2	≥ 2	≥ 2
$purity\ (S/B)$	8.9	10.9	11.2
$dE/dx\ Z\ pull:$			
$mean$	-0.05±0.00	-0.06±0.02	0.10±0.01
σ	1.04±0.00	1.07±0.02	1.15±0.01
$Tof\ pull:$			
$mean$	-0.07±0.00	-0.08±0.02	-0.18±0.01
σ	0.79±0.00	0.77±0.02	0.95±0.01

Table 3: A summary of dE/dx and Tof test on xpmm0d data.