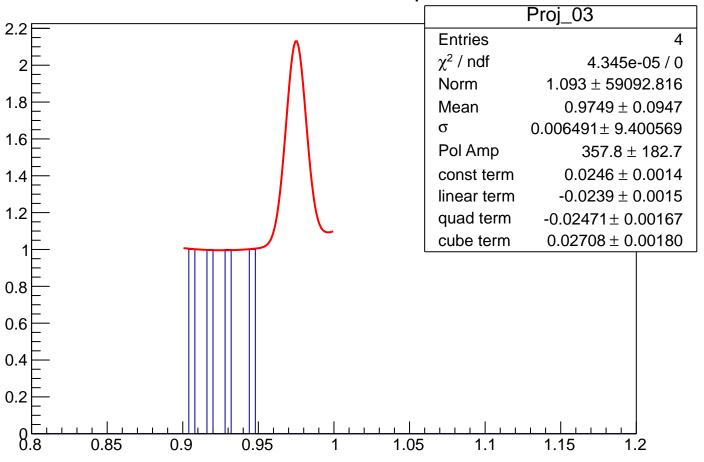


PhiThetaMassPip Proj\_01 **Entries** 3000  $\chi^2$  / ndf 4.412e-14 / 0 Norm  $3136 \pm 52644.7$ Mean  $0.9813 \pm 0.0933$ 2500 σ  $0.009805 \pm 0.130078$ Pol Amp  $375.8 \pm 1457.0$  $0.9478 \pm 0.0101$ const term 2000 linear term  $0.3081 \pm 0.0108$ quad term  $-0.3767 \pm 0.0115$  $-1.11 \pm 0.01$ 1500 cube term 1000 500 8.8 0.85 0.9 0.95 1.05 1.15 1.2



PhiThetaMassPip Proj\_04 **Entries** 6 30  $\chi^2$  / ndf 0.2288 / 0Norm  $135.5 \pm 2080.8$ Mean  $0.8867 \pm 0.0505$ 25 σ  $0.00894 \pm 0.00753$ Pol Amp  $375.1 \pm 803.6$ const term  $-0.02193 \pm 0.01500$ 20  $-0.03513 \pm 0.01615$ linear term quad term  $-0.0045 \pm 0.0174$ 15  $0.07478 \pm 0.01867$ cube term 10 5 8.8

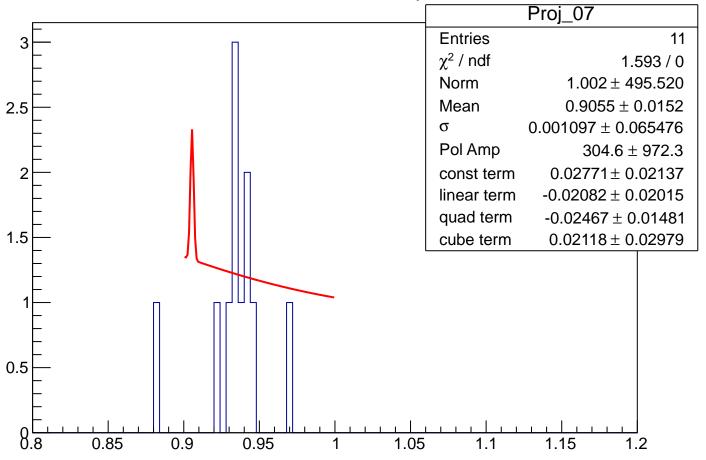
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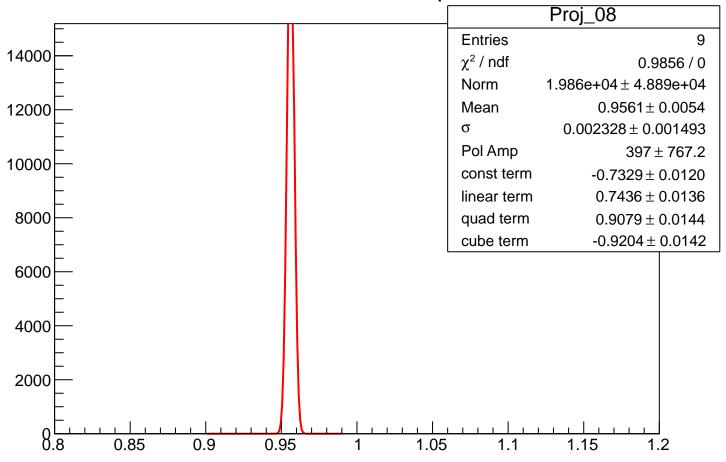
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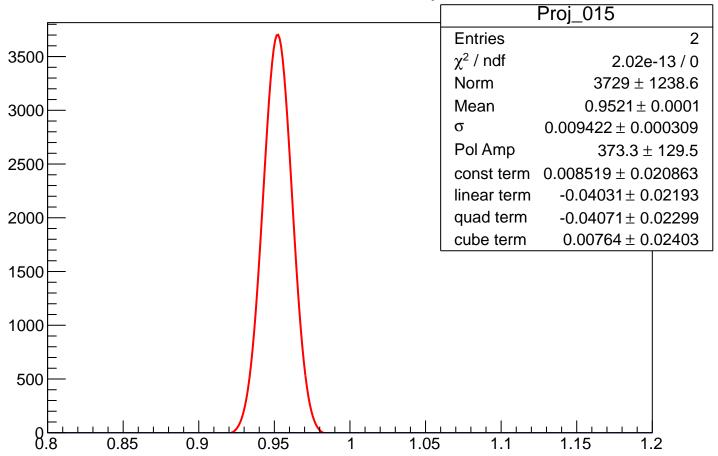
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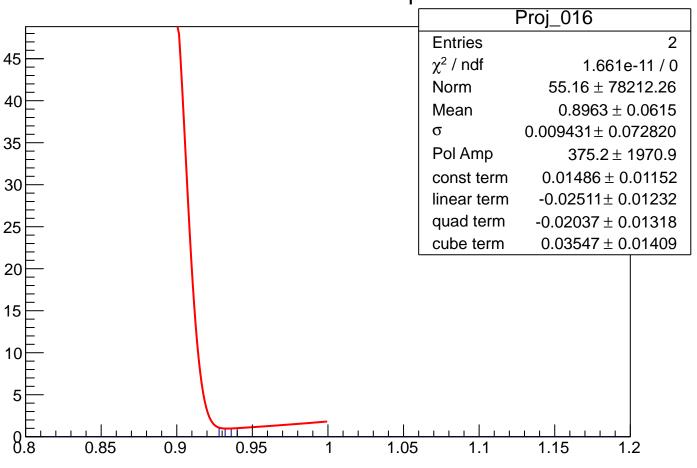
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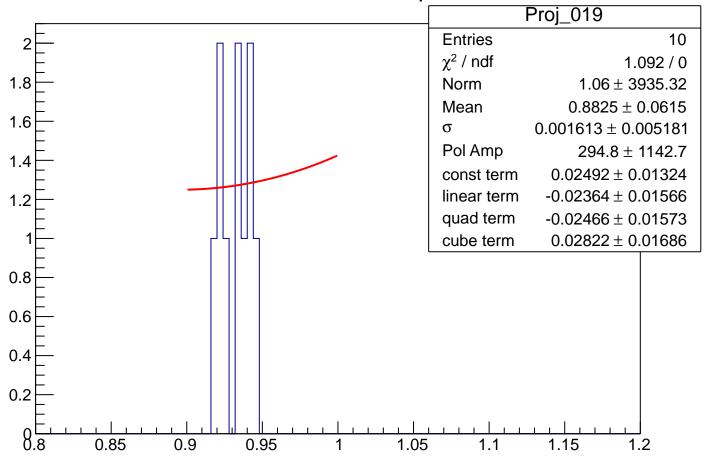
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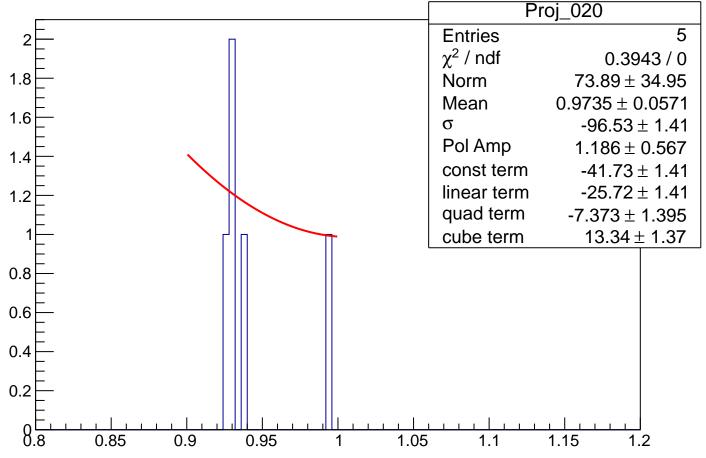


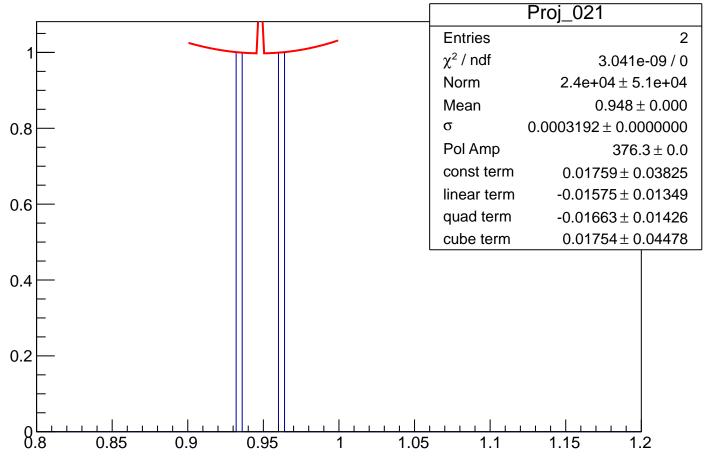


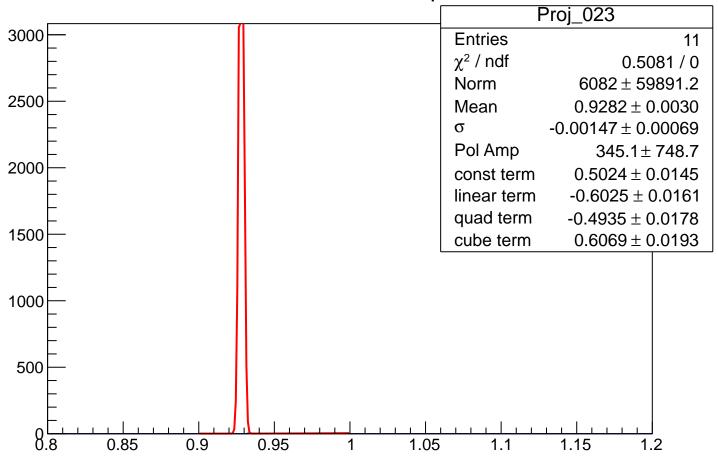












PhiThetaMassPip Proj\_10 **Entries** 712 80  $\chi^2$  / ndf 17.85 / 13 Norm  $83.49 \pm 3.83$ 70 Mean  $0.9381 \pm 0.0006$ σ  $0.01332 \pm 0.00052$ Pol Amp  $1 \pm 242.5$ 60 const term  $-6.032 \pm 5.652$ linear term  $-0.5258 \pm 6.5315$ 50 quad term  $3.039 \pm 6.822$ cube term  $4.39 \pm 6.46$ 40 30 20 10 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

PhiThetaMassPip Proj\_11 **Entries** 175 22  $\chi^2$  / ndf 11.83 / 11 20  $16.3 \pm 2.3$ Norm Mean  $0.9366 \pm 0.0019$ 18 σ  $0.01356 \pm 0.00177$ 16 Pol Amp  $98.01 \pm 108.14$ const term  $-4.466 \pm 0.050$ 14 linear term  $4.732 \pm 0.054$ quad term  $4.897 \pm 0.057$ 12 cube term  $-5.166 \pm 0.059$ 10 8 6 4 2

1.05

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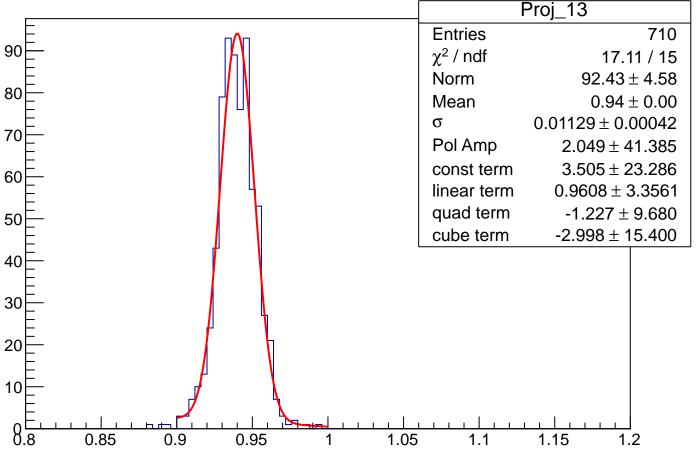
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PhiThetaMassPip Proj\_12 **Entries** 149 20  $\chi^2$  / ndf 4.818 / 10 Norm  $13.38 \pm 3.49$ 18  $0.9431 \pm 0.0014$ Mean σ  $0.005406 \pm 0.001506$ 16 Pol Amp  $572.5 \pm 162.8$ 14 const term  $-4.001 \pm 0.009$ linear term  $4.273 \pm 0.010$ 12 quad term  $4.493 \pm 0.011$ cube term  $-4.782 \pm 0.010$ 10 8 6 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2



PhiThetaMassPip Proj\_14 **Entries** 710 90  $\chi^2$  / ndf 9.68 / 13 Norm  $83.97 \pm 4.36$ 80 Mean  $0.9381 \pm 0.0006$ σ  $0.01213 \pm 0.00054$ 70 Pol Amp  $362.3 \pm 0.6$ const term  $-0.9322 \pm 0.1258$ 60 linear term  $1.029 \pm 0.123$ quad term  $1.025 \pm 0.129$ 50 cube term  $-1.122 \pm 0.130$ 40 30 20 10

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PhiThetaMassPip Proj\_15 **Entries** 162 22  $\chi^2$  / ndf 9.676 / 10 20  $17.43 \pm 1.89$ Norm  $0.937 \pm 0.002$ Mean 18 σ  $0.01303 \pm 0.00185$ 16 Pol Amp  $1.005 \pm 5061.150$ const term  $-3.864 \pm 3.168$ 14 linear term  $5.232 \pm 3.083$ quad term  $5.14 \pm 3.01$ 12 cube term  $-6.149 \pm 2.965$ 10 8 6 4 2

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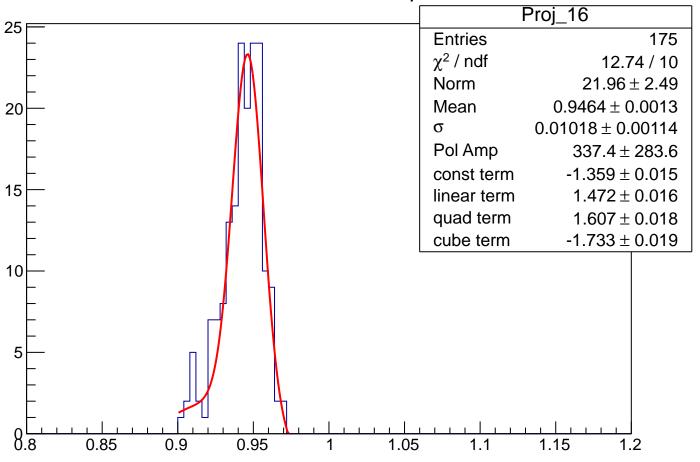
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PhiThetaMassPip Proj\_17 **Entries** 904 120  $\chi^2$  / ndf 12.27 / 13 Norm  $106.6 \pm 5.0$ Mean  $0.9401 \pm 0.0005$ 100 σ  $0.01224 \pm 0.00051$ Pol Amp  $362.4 \pm 0.5$ const term  $-0.789 \pm 0.099$ 80 linear term  $0.878 \pm 0.095$ quad term  $0.8776 \pm 0.1009$  $-0.9648 \pm 0.1014$ cube term 60 40 20 8.8

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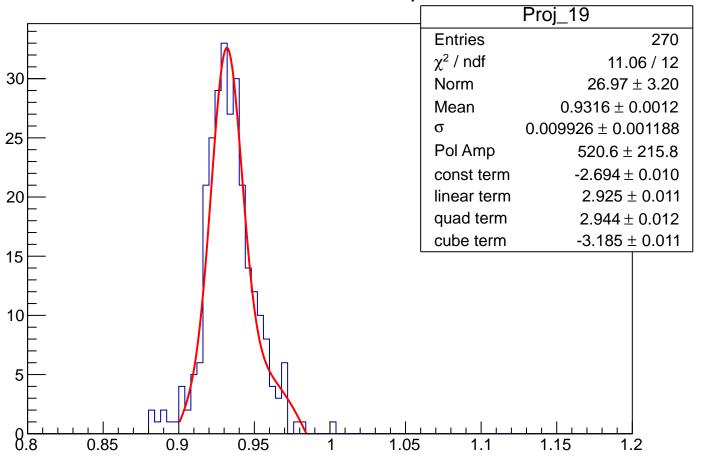
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PhiThetaMassPip Proj\_18 **Entries** 915  $\chi^2$  / ndf 16.52 / 15 100 Norm  $108.1 \pm 4.6$  $0.9342 \pm 0.0000$ Mean σ  $0.0132 \pm 0.0006$ 80 Pol Amp  $369.6 \pm 0.3$ const term  $-0.5583 \pm 0.0765$ linear term  $0.5641 \pm 0.0562$ 60 quad term  $0.5551 \pm 0.0649$  $-0.5571 \pm 0.0482$ cube term 40 20 8.8 0.85 0.9 0.95 1.05 1.15 1.2



PhiThetaMassPip Proj\_110 **Entries** 94  $\chi^2$  / ndf 16.93 / 7 16 Norm  $10.05 \pm 7.13$ Mean  $0.94 \pm 0.01$ 14 σ  $-0.003454 \pm 0.005140$ Pol Amp  $10.23 \pm 6.36$ 12 const term  $-137.7 \pm 0.5$ linear term  $143.8\pm0.5$ 10 quad term  $160.6 \pm 0.6$  $-167.2 \pm 0.5$ cube term 8 6 4 2 8.8 0.95 0.85 0.9 1.05 1.1 1.15 1.2

PhiThetaMassPip Proj\_111 **Entries** 430  $\chi^2$  / ndf 14.58 / 12 60 Norm  $54.92 \pm 3.46$  $0.9387 \pm 0.0007$ Mean 50 σ  $0.01144 \pm 0.00072$ Pol Amp  $1.003 \pm 1522.934$ const term  $-2.364 \pm 2.597$ 40 linear term  $0.1936 \pm 2.9465$ quad term  $1.657 \pm 3.543$  $1.97 \pm 4.29$ cube term 30 20 10 8.8

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PhiThetaMassPip Proj\_112 **Entries** 408 50  $\chi^2$  / ndf 7.158 / 14 Norm  $48.98 \pm 3.11$ Mean  $0.9388 \pm 0.0007$ σ  $0.01221 \pm 0.00062$ 40 Pol Amp  $1.005 \pm 81.448$ const term  $0.6003 \pm 4.2526$ linear term  $1.211 \pm 4.867$ 30 quad term  $0.5025 \pm 5.0116$ cube term  $-1.558 \pm 4.695$ 20 10 8.8

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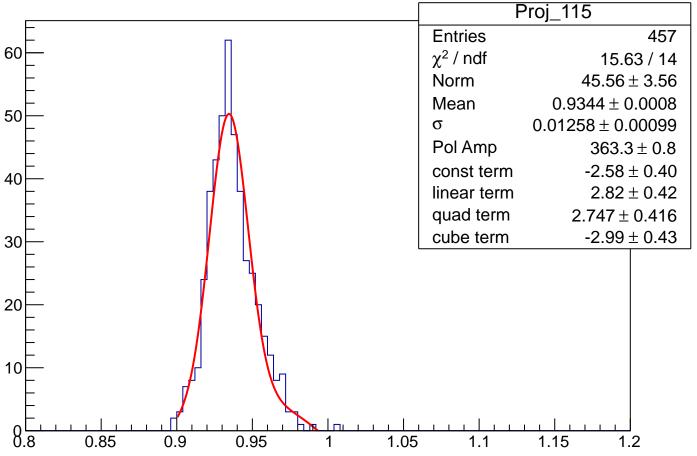
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PhiThetaMassPip Proj\_113 **Entries** 105  $\chi^2$  / ndf 11.5 / 9 12 Norm  $10.87 \pm 1.78$ Mean  $0.9403 \pm 0.0016$ σ  $0.01016 \pm 0.00155$ 10 Pol Amp  $1.929 \pm 34.694$ const term  $-1.547 \pm 9.801$ 8 linear term  $3.908 \pm 3.482$ quad term  $3.119 \pm 2.709$ cube term  $-5.119 \pm 8.661$ 6 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

PhiThetaMassPip Proj\_114 **Entries** 109 20  $\chi^2$  / ndf 18.38 / 8 18 Norm  $94.9 \pm 42.8$ Mean  $0.9359 \pm 0.0001$ 16 σ  $0.0009766 \pm 0.0000769$ Pol Amp  $89.99 \pm 11.76$ 14 const term  $-22.37 \pm 5.18$  $25.47 \pm 6.01$ linear term 12 quad term  $22.03 \pm 4.97$ 10 cube term  $-25.25 \pm 5.75$ 8 6 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2



PhiThetaMassPip Proj\_116 50 **Entries** 434  $\chi^2$  / ndf 13.25 / 14 Norm  $47.1 \pm 3.3$ Mean  $0.9364 \pm 0.0008$ 40 σ  $0.01256 \pm 0.00084$ Pol Amp  $155.4 \pm 197.5$ const term  $-1.616 \pm 0.033$ 30 linear term  $1.777 \pm 0.036$ quad term  $1.711 \pm 0.037$ cube term  $-1.866 \pm 0.035$ 20 10

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PhiThetaMassPip Proj\_117 **Entries** 152 20  $\chi^2$  / ndf 11.47 / 12 18 Norm  $13.88 \pm 1.75$ Mean  $0.9389 \pm 0.0017$ 16 σ  $0.01252 \pm 0.00153$ Pol Amp  $1.046 \pm 93.948$ 14 const term  $6.006 \pm 35.731$ linear term  $4.851 \pm 11.095$ 12 quad term  $-0.5357 \pm 12.5986$ 10 cube term  $-10.53 \pm 34.97$ 8 6 4 2 8.8

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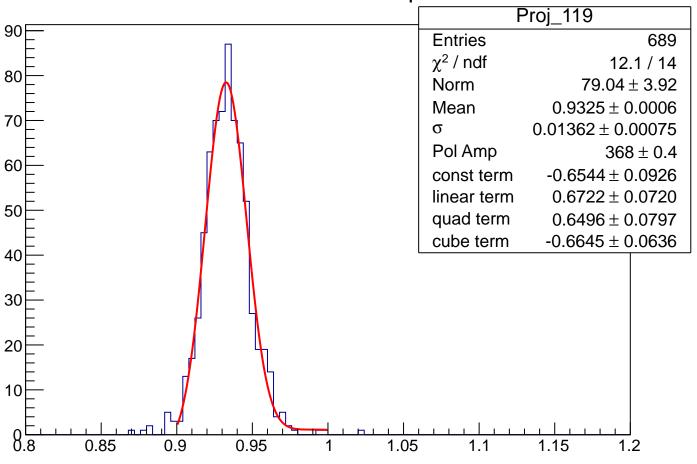
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PhiThetaMassPip Proj\_118 **Entries** 164 25  $\chi^2$  / ndf 8.998 / 13 Norm  $19.32 \pm 2.26$ Mean  $0.933 \pm 0.001$ σ  $0.01067 \pm 0.00127$ 20 Pol Amp  $358.8 \pm 2.3$ const term  $-0.3966 \pm 0.5096$ linear term  $0.4558 \pm 0.5456$ 15 quad term  $0.3672 \pm 0.5593$  $-0.4246 \pm 0.5975$ cube term 10 5 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2



PhiThetaMassPip Proj\_120 **Entries** 661  $\chi^2$  / ndf 35.13 / 13 90  $81.08 \pm 4.80$ Norm 80 Mean  $0.9296 \pm 0.0006$ σ  $0.01149 \pm 0.00088$ 70 Pol Amp  $367.7 \pm 0.6$ const term  $-1.033 \pm 0.230$ 60 linear term  $1.116 \pm 0.211$ quad term  $1.088 \pm 0.223$ 50 cube term  $-1.17 \pm 0.21$ 40 30 20 10

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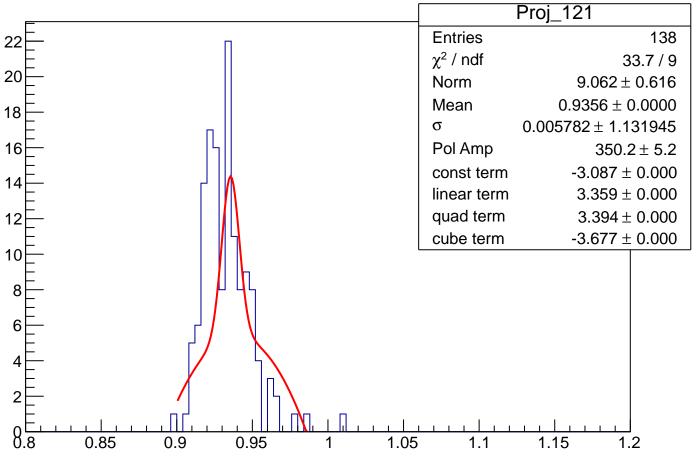
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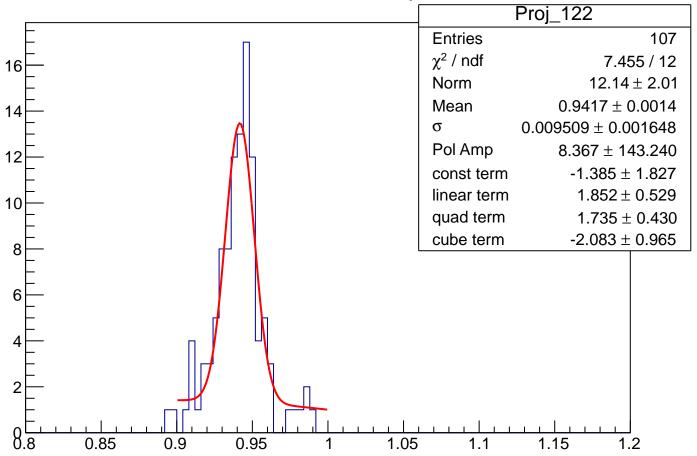
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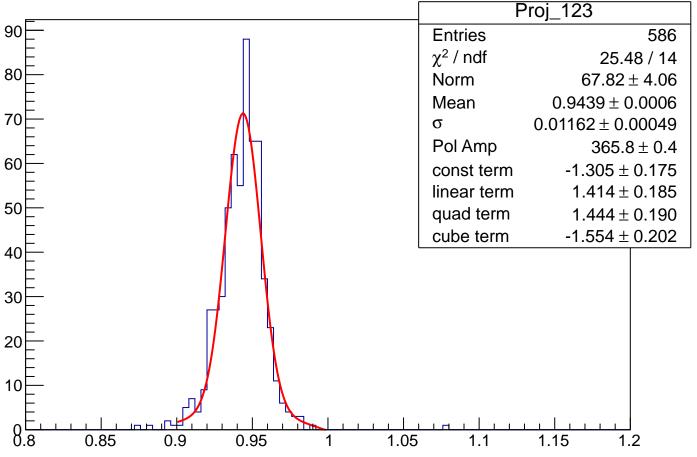
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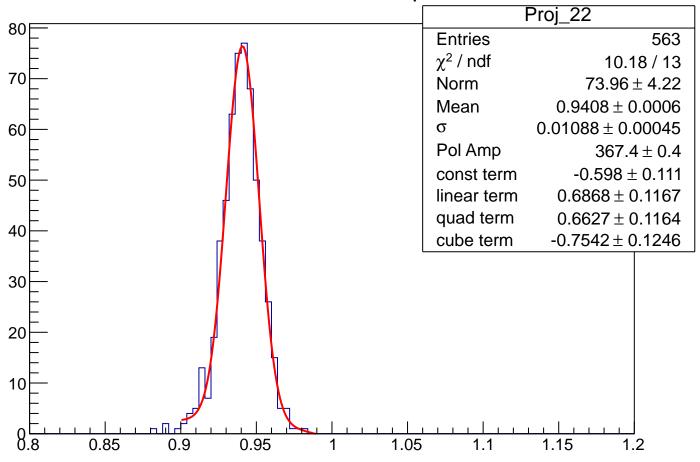


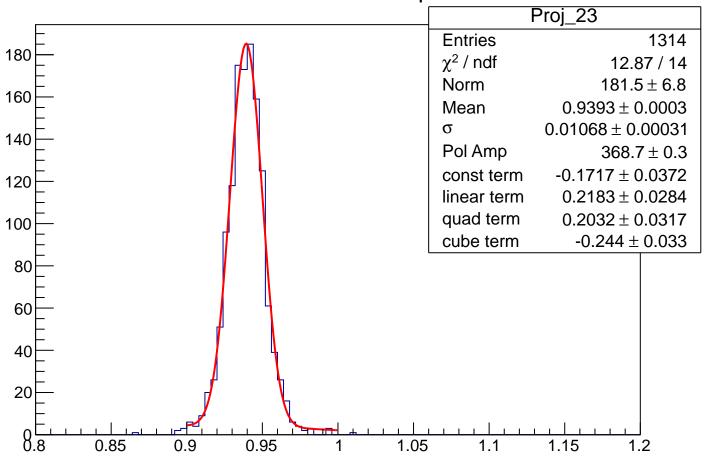


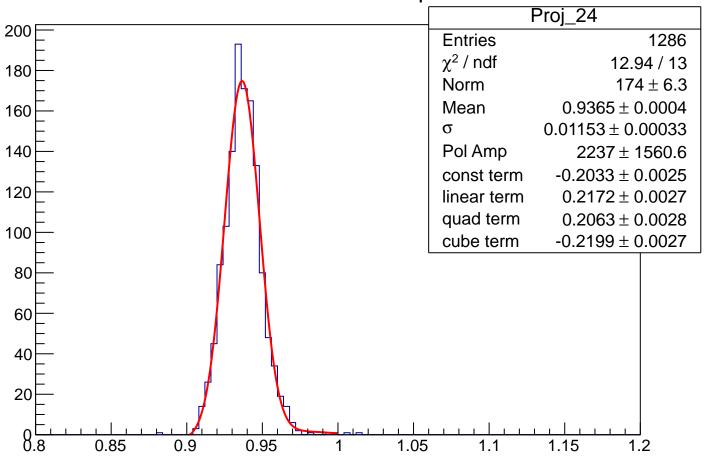


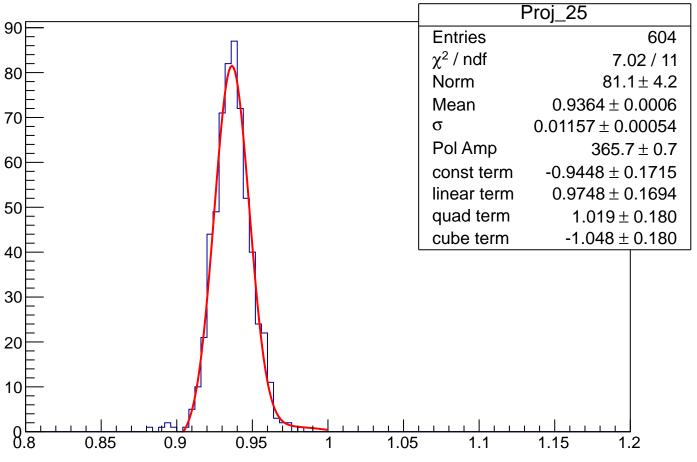
PhiThetaMassPip Proj\_20 **Entries** 884  $\chi^2$  / ndf 16.13 / 12 120 Norm  $122.9 \pm 5.4$ Mean  $0.9393 \pm 0.0004$ 100 σ  $0.01069 \pm 0.00035$ Pol Amp  $365.5 \pm 0.5$ const term  $-0.29 \pm 0.06$ 80 linear term  $0.3228 \pm 0.0597$ quad term  $0.3325 \pm 0.0611$  $-0.3635 \pm 0.0706$ cube term 60 40 20 8.8 0.85 0.9 0.95 1.05 1.15 1.2

PhiThetaMassPip Proj\_21 **Entries** 502  $\chi^2$  / ndf 26.19 / 11 70 Norm  $66.13 \pm 3.68$ Mean  $0.9362 \pm 0.0006$ 60 σ  $0.01145 \pm 0.00053$ Pol Amp  $1 \pm 439.5$ 50 const term  $-4.707 \pm 5.204$ linear term  $-1.022 \pm 5.813$ quad term  $2.151 \pm 6.127$ 40 cube term  $4.707 \pm 6.087$ 30 20 10 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2









PhiThetaMassPip Proj\_26 **Entries** 694  $\chi^2$  / ndf 90 16.68 / 12 Norm  $87.05 \pm 4.38$ 80 Mean  $0.9429 \pm 0.0006$ σ  $0.01206 \pm 0.00051$ 70 Pol Amp  $365.1 \pm 0.6$ const term  $-0.715 \pm 0.107$ 60 linear term  $0.7659 \pm 0.1138$ quad term  $0.8226 \pm 0.1213$ 50  $-0.8777 \pm 0.1325$ cube term 40 30 20 10 0.8 8.8

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PhiThetaMassPip Proj\_27 **Entries** 1570 200  $\chi^2$  / ndf 28.33 / 15 Norm  $206.3 \pm 6.5$ 180 Mean  $0.9391 \pm 0.0003$ σ  $0.01191 \pm 0.00030$ 160 Pol Amp  $371.9 \pm 0.1$ 140 const term  $-0.2256 \pm 0.0312$  $0.2052 \pm 0.0204$ linear term 120 quad term  $0.2241 \pm 0.0252$  $-0.2001 \pm 0.0216$ cube term 100 80 60 40 20

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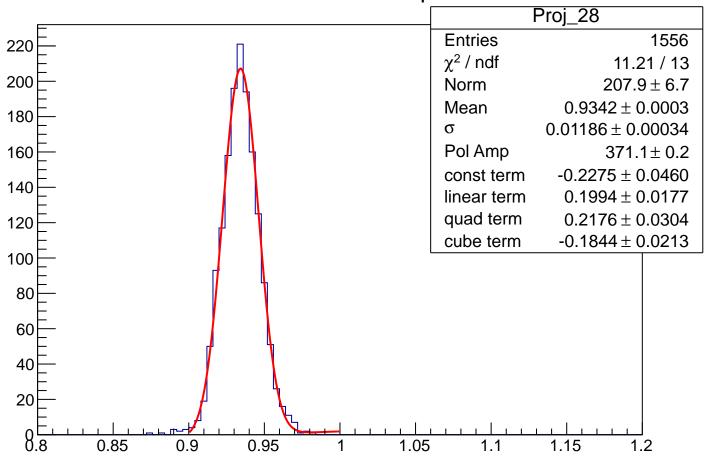
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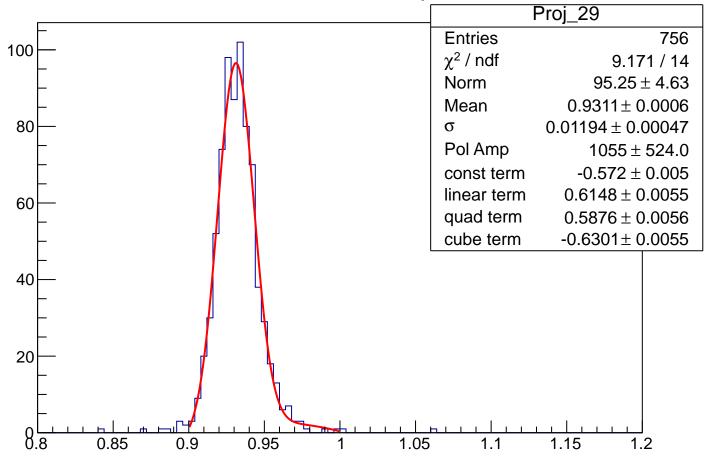
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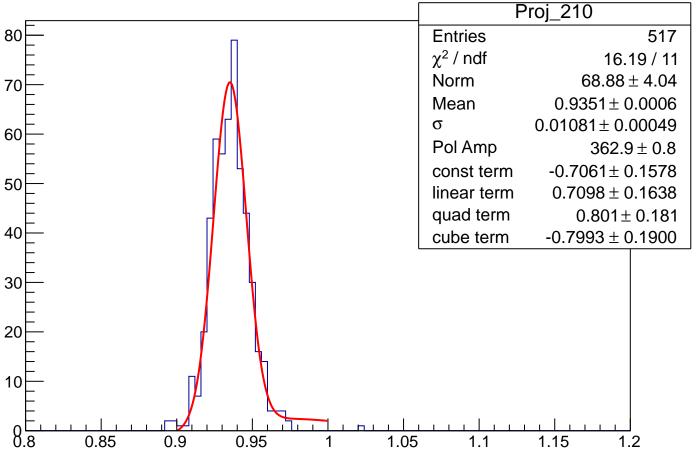
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PhiThetaMassPip Proj\_211 **Entries** 921 120  $\chi^2$  / ndf 12.77 / 12 Norm  $121.3 \pm 5.2$ Mean  $0.938 \pm 0.000$ 100 σ  $0.01167 \pm 0.00038$ Pol Amp  $367.5 \pm 0.4$ const term  $-0.4212 \pm 0.0599$ 80 linear term  $0.438 \pm 0.057$ quad term  $0.4673 \pm 0.0623$  $-0.4823 \pm 0.0635$ cube term 60 40 20

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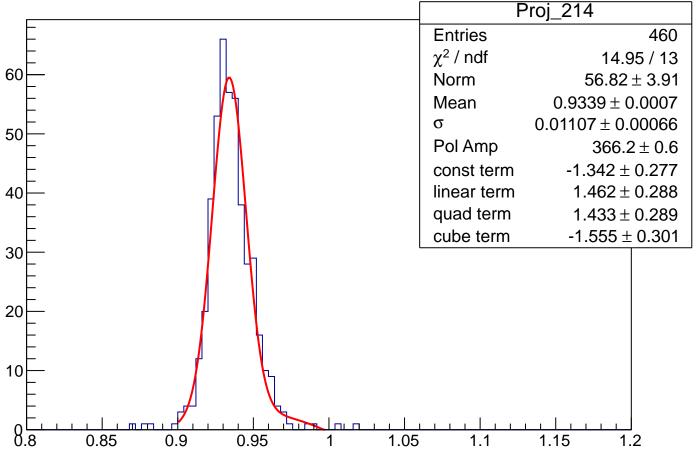
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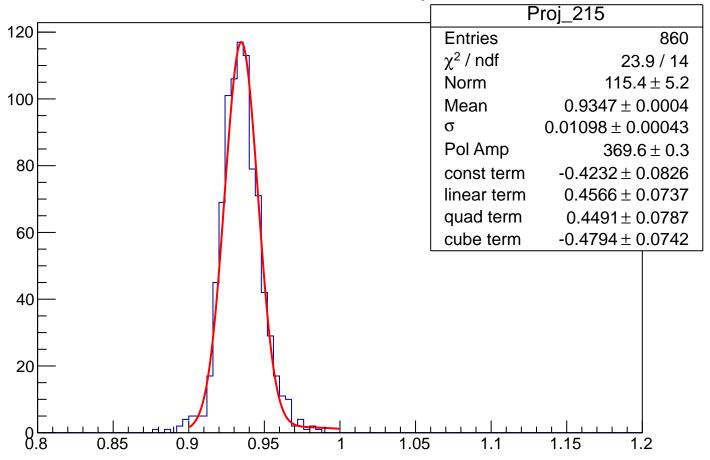
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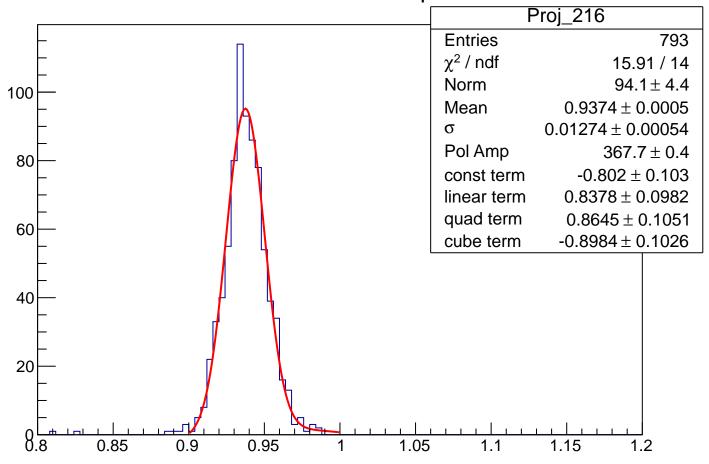
PhiThetaMassPip Proj\_212 **Entries** 764  $\chi^2$  / ndf 25.93 / 13 Norm  $102 \pm 4.9$ 100 Mean  $0.9392 \pm 0.0005$ σ  $0.01064 \pm 0.00038$ Pol Amp  $367.7 \pm 0.4$ 80 const term  $-0.3017 \pm 0.0708$ linear term  $0.3742 \pm 0.0751$ quad term  $0.3467 \pm 0.0744$ 60 cube term  $-0.42 \pm 0.08$ 40 20 8.8 0.85 0.9 0.95 1.05 1.15 1.2

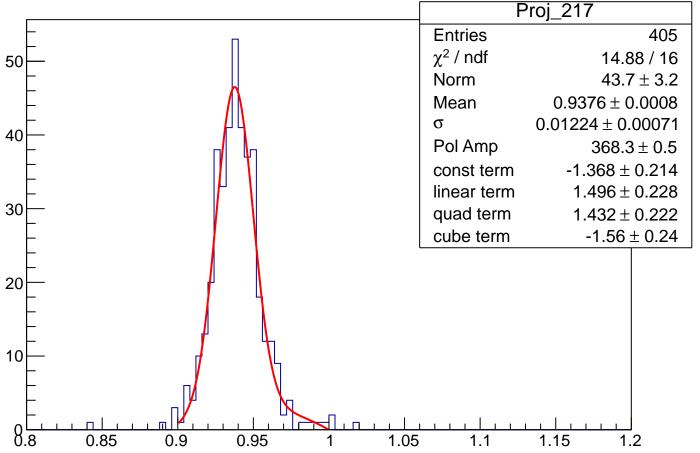
PhiThetaMassPip Proj\_213 **Entries** 321 50  $\chi^2$  / ndf 22.06 / 12  $36.83 \pm 2.82$ Norm Mean  $0.94 \pm 0.00$ 40 σ  $0.01236 \pm 0.00083$ Pol Amp  $1.006 \pm 362.639$ const term  $-2.725 \pm 1.281$ linear term  $2.43 \pm 0.39$ 30 quad term  $3.005 \pm 1.235$ cube term  $-1.817 \pm 3.712$ 20 10 8.8 0.85 0.9 0.95 1.05 1.15

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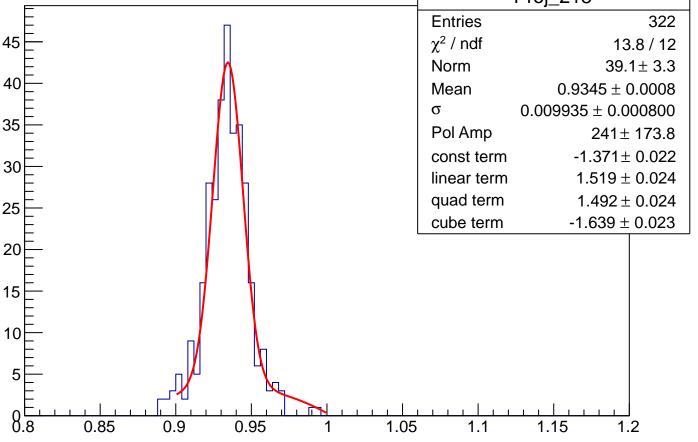


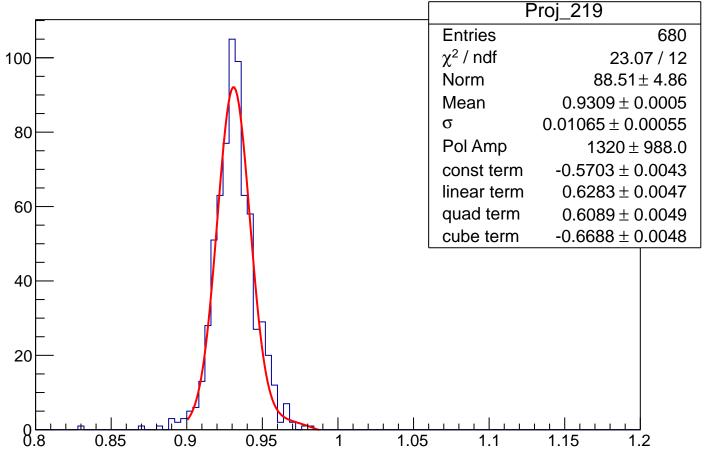


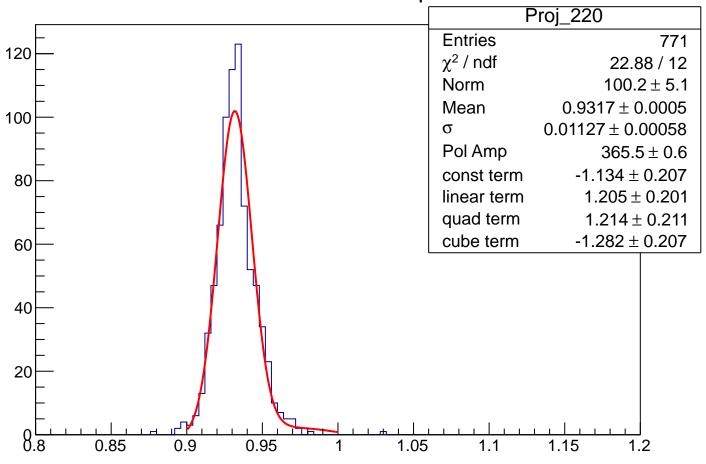




PhiThetaMassPip Proj\_218 **Entries** 322  $\chi^2$  / ndf 13.8 / 12 Norm  $39.1 \pm 3.3$ Mean  $0.9345 \pm 0.0008$ σ  $0.009935 \pm 0.000800$ Pol Amp  $241 \pm 173.8$ const term  $-1.371 \pm 0.022$ linear term  $1.519 \pm 0.024$ quad term  $1.492 \pm 0.024$ cube term  $-1.639 \pm 0.023$ 







PhiThetaMassPip Proj\_221 **Entries** 350  $\chi^2$  / ndf 11.83 / 15 Norm  $43.14 \pm 3.29$ Mean  $0.932 \pm 0.001$ σ  $0.01102 \pm 0.00071$ Pol Amp  $367 \pm 0.6$ const term  $-1.293 \pm 0.282$ linear term  $1.405 \pm 0.291$ quad term  $1.361 \pm 0.289$ cube term  $-1.474 \pm 0.299$ 

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PhiThetaMassPip Proj\_222 **Entries** 287  $\chi^2$  / ndf 13.48 / 14 35 Norm  $33.21 \pm 2.75$ Mean  $0.9446 \pm 0.0008$ 30 σ  $0.01139 \pm 0.00078$ Pol Amp  $2.29 \pm 8.64$ 25 const term  $0.6606 \pm 6.5474$ linear term  $2.588 \pm 1.949$ quad term 1.11± 2.10 20 cube term  $-4.055 \pm 5.449$ 15 10 5 8.8

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PhiThetaMassPip Proj\_223 **Entries** 668  $\chi^2$  / ndf 18.92 / 13 90 Norm  $84.68 \pm 4.47$ 80 Mean  $0.9407 \pm 0.0005$ σ  $0.01149 \pm 0.00051$ 70 Pol Amp  $3.894 \pm 16.397$ const term  $0.6211 \pm 3.8078$ 60 linear term  $1.077 \pm 0.736$ quad term  $0.2999 \pm 1.3917$ 50 cube term  $-1.771 \pm 2.382$ 40 30 20 10

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PhiThetaMassPip Proj\_30 **Entries** 967 140  $\chi^2$  / ndf 26.06 / 14 Norm  $124.9 \pm 5.4$ Mean  $0.9401 \pm 0.0004$ 120  $0.01137 \pm 0.00036$ σ Pol Amp  $368.1 \pm 0.3$ 100 const term  $-0.3777 \pm 0.0527$  $0.4099 \pm 0.0513$ linear term 80 quad term  $0.4142 \pm 0.0534$ cube term  $-0.4428 \pm 0.0562$ 60 40 20

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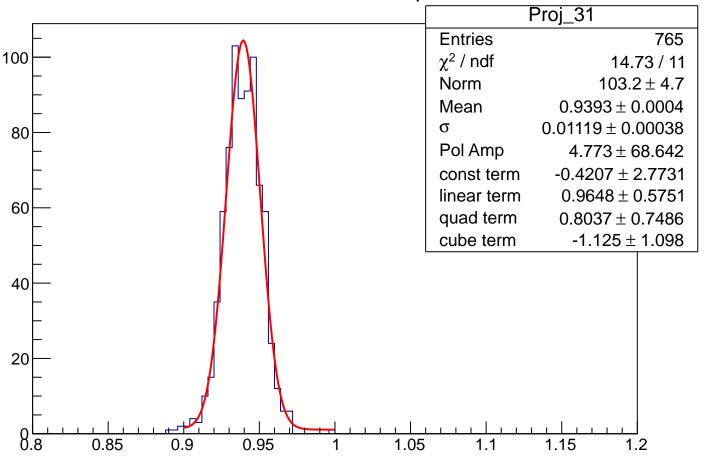
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PhiThetaMassPip Proj\_32 **Entries** 697 90  $\chi^2$  / ndf 8.761 / 12 Norm  $90.93 \pm 4.49$ 80  $0.9397 \pm 0.0005$ Mean σ  $0.01167 \pm 0.00045$ 70 Pol Amp  $367.7 \pm 0.4$ const term  $-0.5992 \pm 0.0932$ 60 linear term  $0.652 \pm 0.098$ 50 quad term  $0.6723 \pm 0.1014$ cube term  $-0.7282 \pm 0.1088$ 40 30 20 10

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PhiThetaMassPip Proj\_33 **Entries** 1103  $\chi^2$  / ndf 8.369 / 14 140 Norm  $141.9 \pm 5.5$ Mean  $0.9391 \pm 0.0004$ 120 σ  $0.01211 \pm 0.00037$ Pol Amp  $370.9 \pm 0.2$ 100 const term  $-0.3568 \pm 0.0454$ linear term  $0.3758 \pm 0.0422$ quad term  $0.3751 \pm 0.0439$ 80 cube term  $-0.3924 \pm 0.0448$ 60 40 20 8.8

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0.9

PhiThetaMassPip Proj\_34 **Entries** 1205  $\chi^2$  / ndf 22.9 / 17 140 Norm  $148.7 \pm 5.6$  $0.9374 \pm 0.0004$ Mean 120 σ  $0.0122 \pm 0.0004$ Pol Amp  $372.7 \pm 0.1$ 100 const term  $-0.1288 \pm 0.0338$ linear term  $0.1513 \pm 0.0147$ quad term  $0.1365 \pm 0.0209$ 80 cube term  $-0.1564 \pm 0.0216$ 60 40 20 8.8 0.85 0.9 0.95 1.05 1.15

PhiThetaMassPip Proj\_35 **Entries** 776  $\chi^2$  / ndf 8.975 / 12 100 Norm  $99.26 \pm 4.92$ Mean  $0.9358 \pm 0.0005$ σ  $0.01137 \pm 0.00049$ 80 Pol Amp  $361.9 \pm 0.7$ const term  $-0.8211 \pm 0.1285$ linear term  $0.839 \pm 0.130$ 60 quad term  $0.9088 \pm 0.1398$  $-0.9181 \pm 0.1454$ cube term 40 20 8.8

1.05

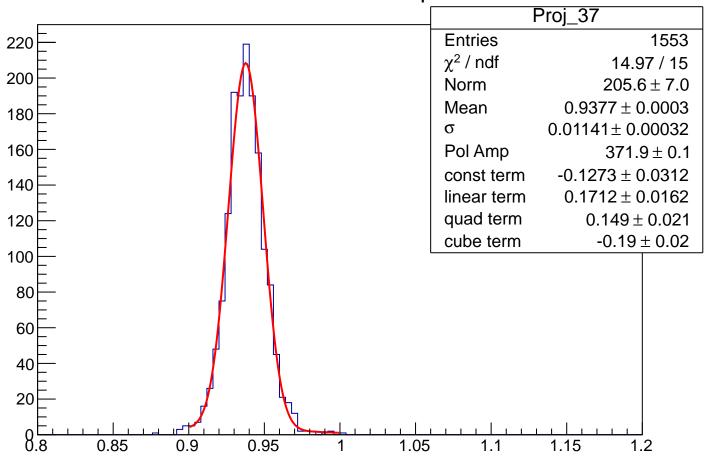
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PhiThetaMassPip Proj\_36 **Entries** 895  $\chi^2$  / ndf 120 11.94 / 14 Norm  $118.8 \pm 5.5$  $0.9401 \pm 0.0004$ Mean 100 σ  $0.011 \pm 0.000$ Pol Amp  $369.9 \pm 0.3$ const term  $-0.3265 \pm 0.0605$ 80 linear term  $0.4004 \pm 0.0566$ quad term  $0.3694 \pm 0.0584$ cube term  $-0.4434 \pm 0.0582$ 60 40 20 8.8 0.85 0.9 0.95 1.05 1.15 1.2



PhiThetaMassPip Proj\_38 220 **Entries** 1478  $\chi^2$  / ndf 8.729 / 13 200 Norm  $199.8 \pm 6.6$ 180 Mean  $0.934 \pm 0.000$ σ  $0.0117 \pm 0.0004$ 160 Pol Amp  $370.2 \pm 0.2$ const term  $-0.2336 \pm 0.0457$ 140 linear term  $0.2069 \pm 0.0201$ 120 quad term  $0.2261 \pm 0.0309$ cube term  $-0.1933 \pm 0.0258$ 100 80 60 40 20

1.05

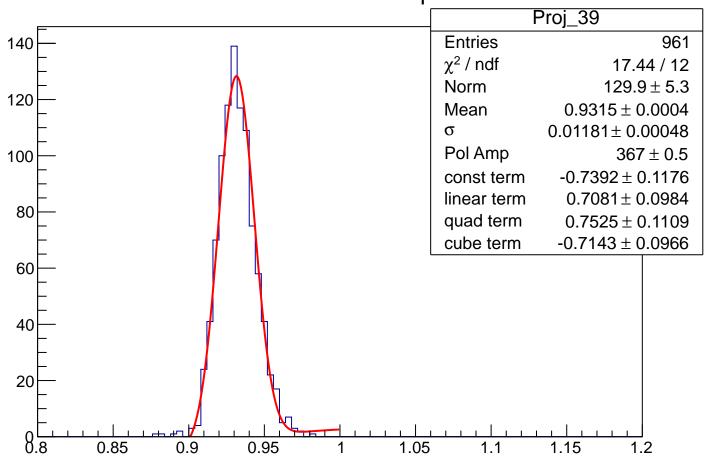
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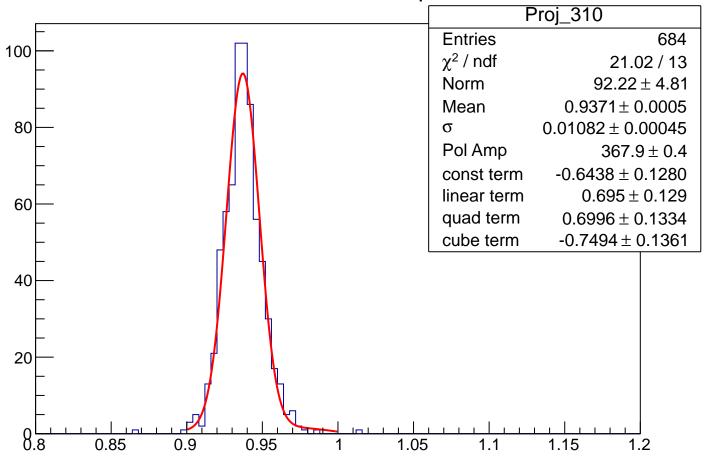
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0.8 8.8

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PhiThetaMassPip Proj\_311 120 **Entries** 836  $\chi^2$  / ndf 17.43 / 13 Norm  $118.4 \pm 5.1$ 100 Mean  $0.9392 \pm 0.0004$ σ  $0.01075 \pm 0.00032$ Pol Amp  $8.343 \pm 163.320$ 80 const term  $-0.9257 \pm 4.4664$  $0.07613 \pm 2.43405$ linear term quad term  $0.6038 \pm 1.5393$ 60  $0.4925 \pm 7.3300$ cube term 40 20

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PhiThetaMassPip Proj\_312 **Entries** 564  $\chi^2$  / ndf 14.77 / 12 80 Norm  $74.25 \pm 4.39$ Mean  $0.94 \pm 0.00$ 70 σ  $0.01042 \pm 0.00047$ Pol Amp  $364.3 \pm 0.6$ 60 const term  $-0.7354 \pm 0.1405$ linear term  $0.8362 \pm 0.1472$ 50 quad term  $0.8243 \pm 0.1497$ cube term  $-0.9268 \pm 0.1589$ 40 30 20 10

1.05

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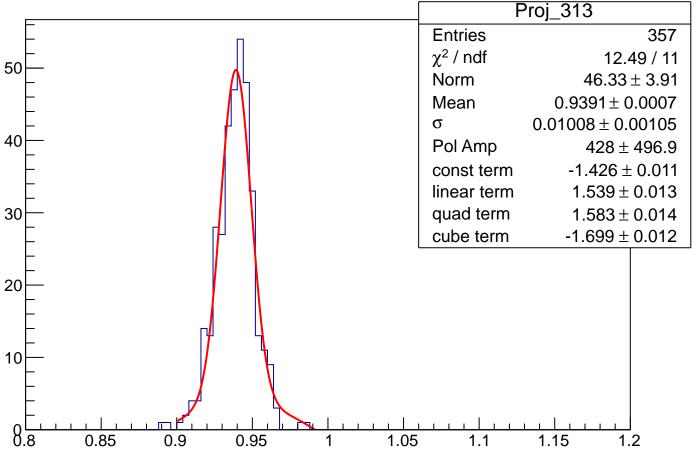
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PhiThetaMassPip Proj\_314 **Entries** 628 90  $\chi^2$  / ndf 5.969 / 10 Norm  $87.14 \pm 5.32$ 80 Mean  $0.9362 \pm 0.0005$ σ  $0.00974 \pm 0.00060$ 70 Pol Amp  $3046 \pm 2013.4$ const term  $-0.5494 \pm 0.0022$ 60 linear term  $0.5973 \pm 0.0025$ quad term  $0.601 \pm 0.003$ 50  $-0.6513 \pm 0.0024$ cube term 40 30 20 10 0.8 8.8

1.05

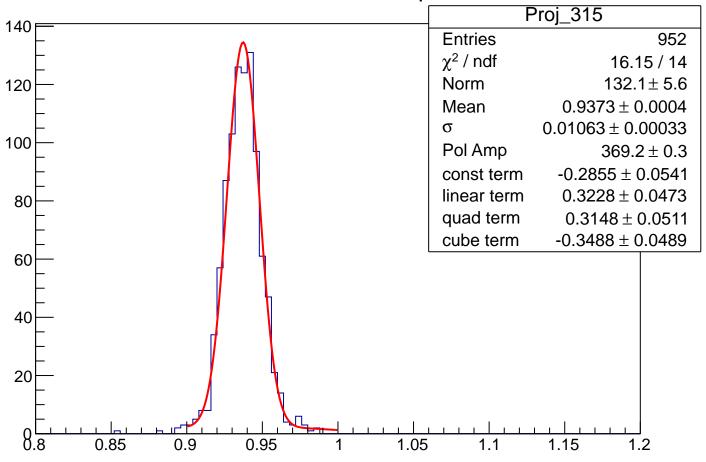
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PhiThetaMassPip Proj\_316 **Entries** 831  $\chi^2$  / ndf 10.74 / 13 100 Norm  $103.6 \pm 5.0$ Mean  $0.9383 \pm 0.0005$ σ  $0.01157 \pm 0.00047$ 80 Pol Amp  $363.5 \pm 0.5$ const term  $-0.6619 \pm 0.0963$ linear term  $0.7179 \pm 0.0962$ 60 quad term  $0.7329 \pm 0.1009$  $-0.7849 \pm 0.1053$ cube term 40 20 8.8

1.05

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PhiThetaMassPip Proj\_317 **Entries** 429  $\chi^2$  / ndf 14.42 / 13 Norm  $48.13 \pm 3.91$ 50 Mean  $0.9388 \pm 0.0008$ σ  $0.01127 \pm 0.00096$ Pol Amp  $599.8 \pm 381.4$ 40 const term  $-1.808 \pm 0.008$ linear term  $1.92 \pm 0.01$ quad term  $2.032 \pm 0.010$ 30 cube term  $-2.148 \pm 0.009$ 20 10 8.8

1.05

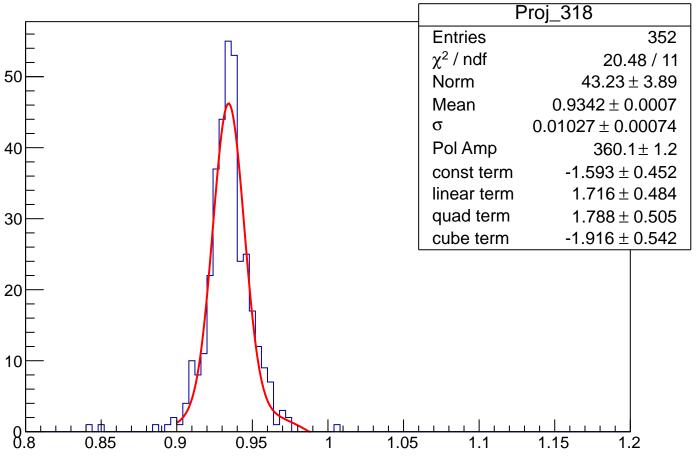
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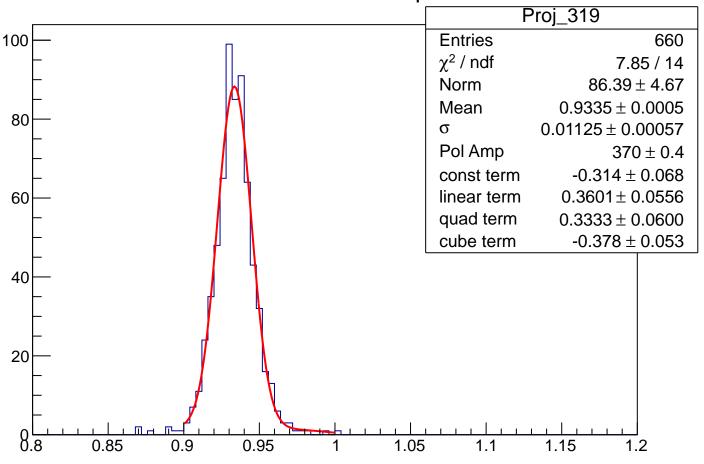
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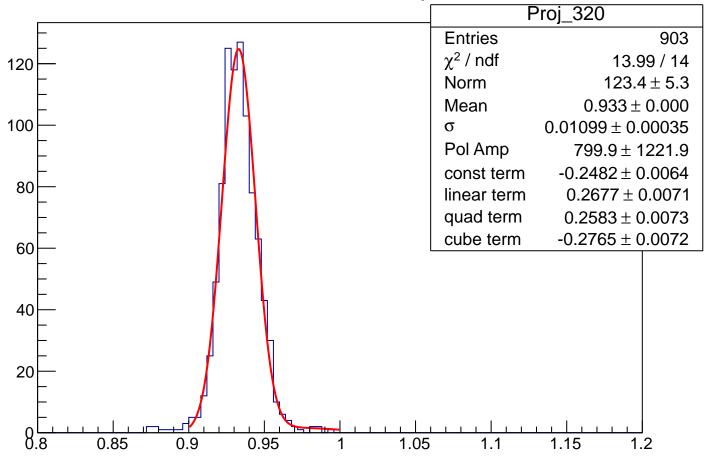
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PhiThetaMassPip Proj\_321 **Entries** 480  $\chi^2$  / ndf 60 25.1 / 14 Norm  $61.2 \pm 3.8$ Mean  $0.9344 \pm 0.0006$ 50 σ  $0.01105 \pm 0.00049$ Pol Amp  $367.4 \pm 0.5$ const term  $-1.386 \pm 0.292$ 40 linear term  $1.452 \pm 0.305$ quad term  $1.507 \pm 0.317$ cube term  $-1.572 \pm 0.331$ 30 20 10

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PhiThetaMassPip Proj\_322 **Entries** 458 60  $\chi^2$  / ndf 14.75 / 15 Norm  $51.74 \pm 3.74$ Mean  $0.9449 \pm 0.0007$ 50 σ  $0.01138 \pm 0.00059$ Pol Amp  $364.9 \pm 0.6$ const term  $-1.432 \pm 0.211$ 40 linear term  $1.568 \pm 0.225$ quad term  $1.566 \pm 0.226$ cube term  $-1.703 \pm 0.242$ 30 20 10

1.05

1.1

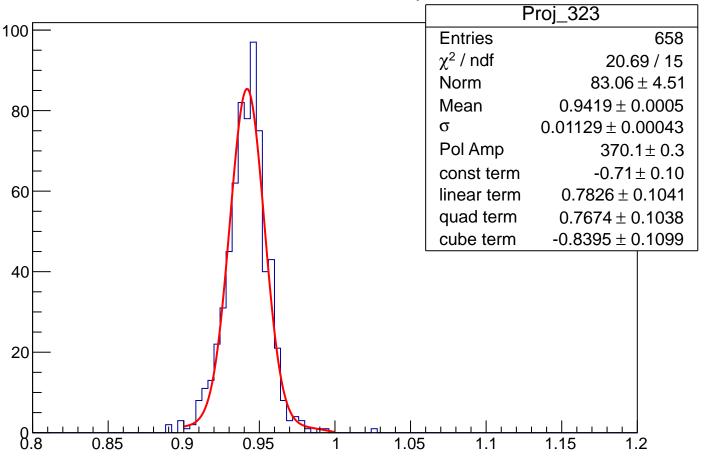
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PhiThetaMassPip Proj\_40 **Entries** 791  $\chi^2$  / ndf 7.828 / 15 100 Norm  $103.5 \pm 5.1$ Mean  $0.9412 \pm 0.0005$ σ  $0.01094 \pm 0.00041$ 80 Pol Amp  $368.4 \pm 0.3$ const term  $-0.6403 \pm 0.0999$ linear term  $0.716 \pm 0.101$ 60 quad term  $0.6992 \pm 0.1025$  $-0.7718 \pm 0.1051$ cube term 40 20

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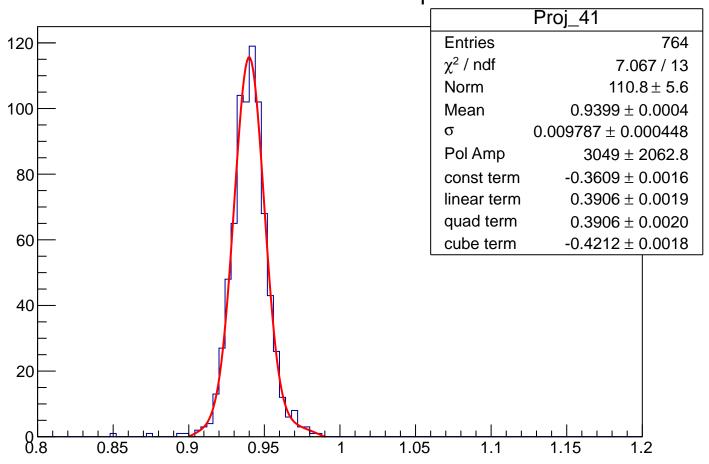
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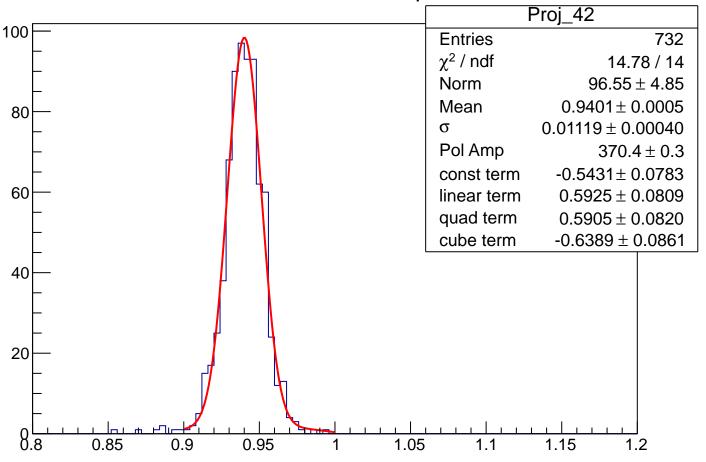
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PhiThetaMassPip Proj\_43 **Entries** 1043 140  $\chi^2$  / ndf 17.66 / 15 Norm  $131.3 \pm 5.4$ 120 Mean  $0.94 \pm 0.00$ σ  $0.01187 \pm 0.00039$ Pol Amp  $369.4 \pm 0.2$ 100 const term  $-0.5549 \pm 0.0713$ linear term  $0.5969 \pm 0.0664$ 80 quad term  $0.5909 \pm 0.0697$  $-0.6289 \pm 0.0678$ cube term 60 40 20

1.05

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PhiThetaMassPip Proj\_44 **Entries** 1087  $\chi^2$  / ndf 31.98 / 14 140 Norm  $140.1 \pm 5.6$ Mean  $0.9391 \pm 0.0004$ 120 σ  $0.01167 \pm 0.00035$ Pol Amp  $370.6 \pm 0.2$ 100 const term  $-0.3861 \pm 0.0498$ linear term  $0.4031 \pm 0.0484$ quad term  $0.4184 \pm 0.0510$ 80  $-0.4328 \pm 0.0529$ cube term 60 40 20

1.05

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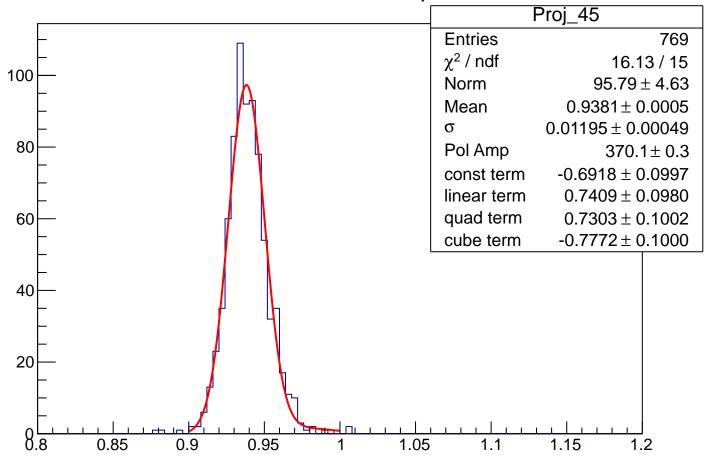
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PhiThetaMassPip Proj\_46 **Entries** 913  $\chi^2$  / ndf 8.649 / 14 120 Norm  $117.3 \pm 5.2$  $0.9396 \pm 0.0004$ Mean 100 σ  $0.0115 \pm 0.0004$ Pol Amp  $367.4 \pm 0.3$ const term  $-0.5734 \pm 0.0730$ 80  $0.619 \pm 0.072$ linear term quad term  $0.6258 \pm 0.0751$  $-0.6671 \pm 0.0774$ cube term 60 40 20 8.8 0.85 0.9 0.95 1.05 1.15 1.2

PhiThetaMassPip Proj\_47 **Entries** 1242  $\chi^2$  / ndf 18.29 / 15 160 Norm  $161.9 \pm 5.9$ Mean  $0.9368 \pm 0.0004$ 140 σ  $0.01178 \pm 0.00036$ Pol Amp  $371.6 \pm 0.2$ 120 const term  $-0.3012 \pm 0.0487$ linear term  $0.3106 \pm 0.0340$ 100 quad term  $0.3095 \pm 0.0410$  $-0.3154 \pm 0.0307$ cube term 80 60 40 20 8.8

1.05

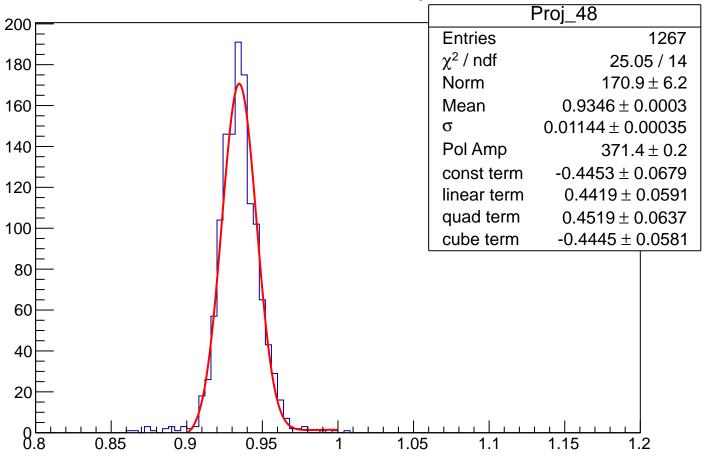
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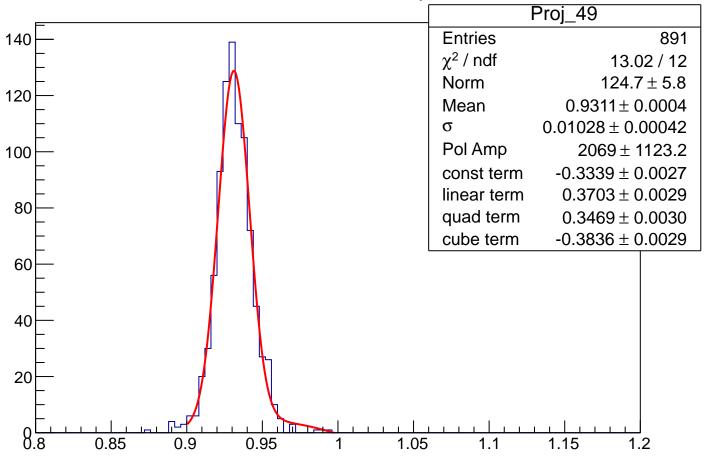
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PhiThetaMassPip Proj\_410 **Entries** 656 90  $\chi^2$  / ndf 12.55 / 12 Norm  $91.84 \pm 4.76$ 80  $0.9376 \pm 0.0005$ Mean σ  $0.01052 \pm 0.00047$ 70 Pol Amp  $46.6 \pm 2046.7$ const term  $-0.3456 \pm 1.4117$ 60 linear term  $0.5119 \pm 0.2479$ quad term  $0.4618 \pm 0.4834$ 50  $-0.6084 \pm 0.8931$ cube term 40 30 20 10

1.05

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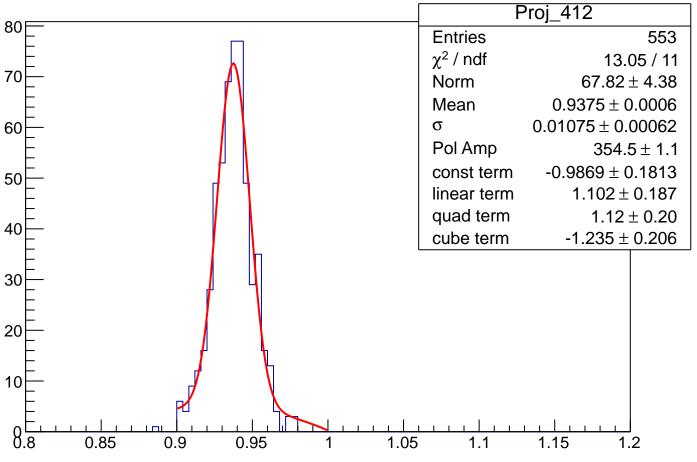
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PhiThetaMassPip Proj\_411 **Entries** 718  $\chi^2$  / ndf 8.937 / 13 100 Norm  $100.9 \pm 4.8$ Mean  $0.9394 \pm 0.0004$ σ  $0.01082 \pm 0.00038$ 80 Pol Amp  $24.4 \pm 83.9$ const term  $-0.4967 \pm 0.2133$ linear term  $0.6283 \pm 0.2231$ 60  $0.5964 \pm 0.2199$ quad term  $-0.6889 \pm 0.2013$ cube term 40 20 8.8 0.85 0.9 0.95 1.05 1.15 1.2



PhiThetaMassPip Proj\_413 **Entries** 428 60  $\chi^2$  / ndf 11.65 / 11 Norm  $59.1 \pm 3.8$ Mean  $0.9365 \pm 0.0006$ 50 σ  $0.01044 \pm 0.00054$ Pol Amp  $365.5 \pm 0.8$ 40 const term  $-0.3285 \pm 0.0895$ linear term  $0.3863 \pm 0.0964$ quad term  $0.3659 \pm 0.0957$ 30 cube term  $-0.4258 \pm 0.1062$ 20 10 8.8

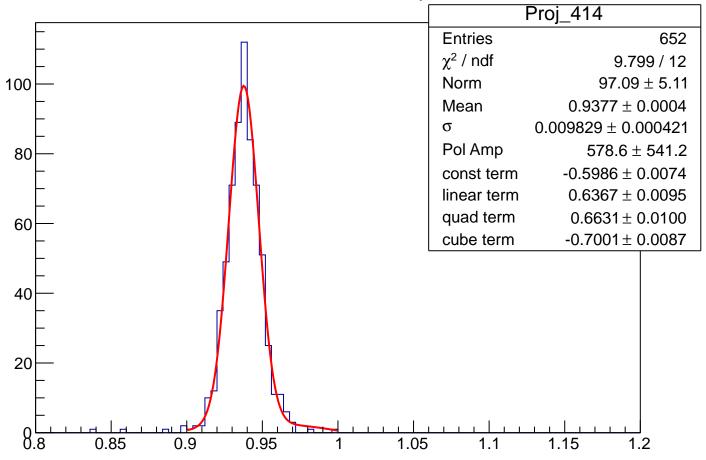
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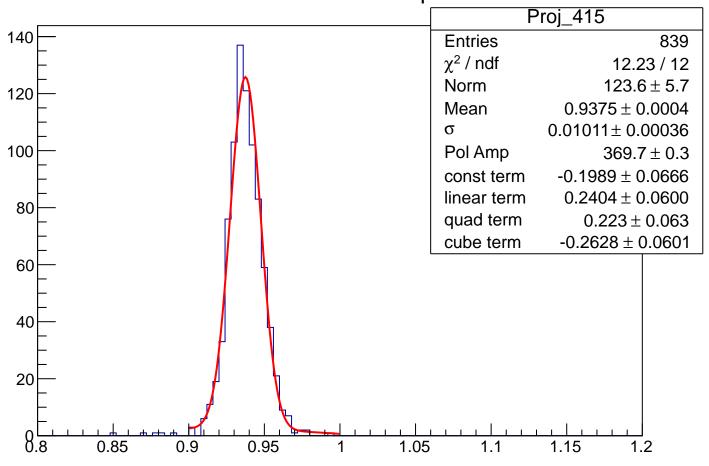
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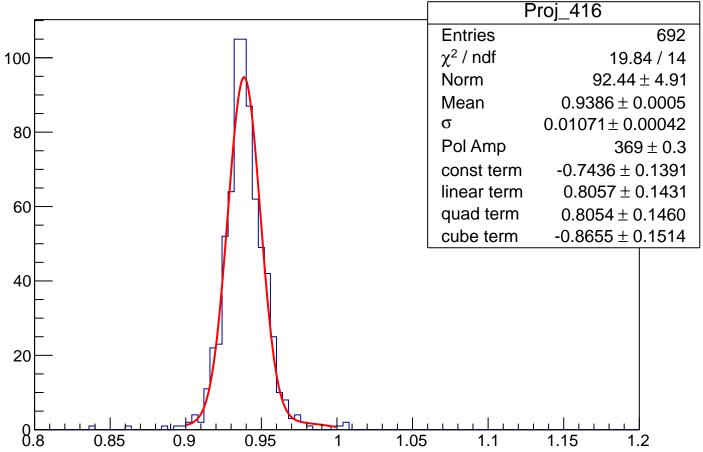
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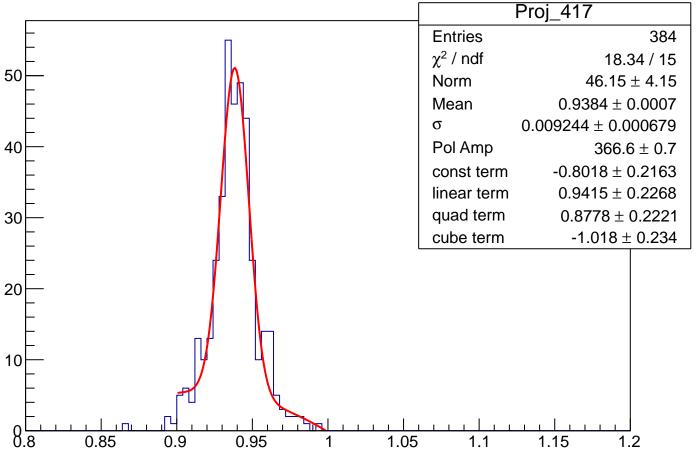
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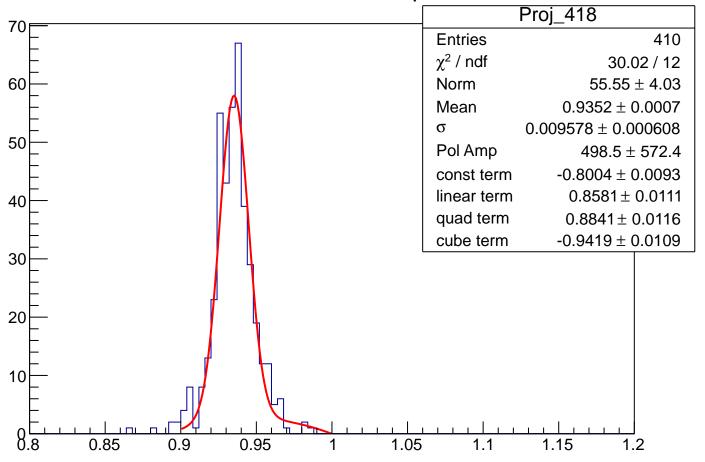
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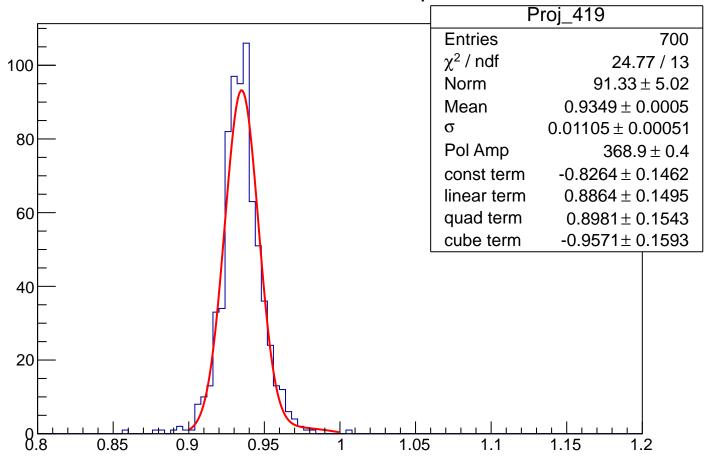












PhiThetaMassPip Proj\_420 **Entries** 918  $\chi^2$  / ndf 15.45 / 12 120 Norm  $124.2 \pm 5.6$ Mean  $0.9349 \pm 0.0004$ σ  $0.01073 \pm 0.00043$ 100 Pol Amp  $367 \pm 0.4$ const term  $-0.5559 \pm 0.1064$ 80 linear term  $0.6331 \pm 0.1015$ quad term  $0.6116 \pm 0.1059$  $-0.6869 \pm 0.1046$ cube term 60 40 20 8.8

1.05

1.15

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0.85

0.9

PhiThetaMassPip Proj\_421 **Entries** 635  $\chi^2$  / ndf 18.56 / 14 100 Norm  $89.83 \pm 4.91$  $0.9338 \pm 0.0005$ Mean σ  $0.0102 \pm 0.0004$ 80 Pol Amp  $370.3 \pm 0.3$ const term  $-0.4164 \pm 0.1099$  $0.465 \pm 0.110$ linear term quad term 60  $0.4452 \pm 0.1104$ cube term  $-0.4922 \pm 0.1119$ 40 20 8.8 0.85 0.9 0.95 1.05 1.15 1.2

PhiThetaMassPip Proj\_422 **Entries** 471 70  $\chi^2$  / ndf 6.181 / 13 Norm  $69.49 \pm 4.68$  $0.9435 \pm 0.0005$ Mean 60 σ  $0.008787 \pm 0.000508$ Pol Amp  $732.2 \pm 306.8$ 50 const term  $-1.116 \pm 0.006$ linear term  $1.158 \pm 0.007$ quad term  $1.281 \pm 0.008$ 40 cube term  $-1.322 \pm 0.007$ 30 20 10 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

PhiThetaMassPip Proj\_423 80 **Entries** 563  $\chi^2$  / ndf 18.31 / 16 70 Norm  $74.7 \pm 3.9$ Mean  $0.9424 \pm 0.0005$ σ  $0.01106 \pm 0.00039$ 60 Pol Amp  $1.32 \pm 109.98$ const term  $0.1716 \pm 3.7611$ 50 linear term  $-0.6631 \pm 8.1718$ quad term  $-0.225 \pm 4.328$ 40  $1.653 \pm 17.055$ cube term 30 20 10 8.8

1.05

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PhiThetaMassPip Proj\_50 **Entries** 614  $\chi^2$  / ndf 90 14 / 14 Norm  $87.14 \pm 4.88$ 80 Mean  $0.9411 \pm 0.0005$ σ  $0.01029 \pm 0.00042$ 70 Pol Amp  $369.4 \pm 0.4$ const term  $-0.4391 \pm 0.1069$ 60 linear term  $0.4669 \pm 0.1129$ quad term  $0.4887 \pm 0.1173$ 50  $-0.5134 \pm 0.1251$ cube term 40 30 20 10 

1.05

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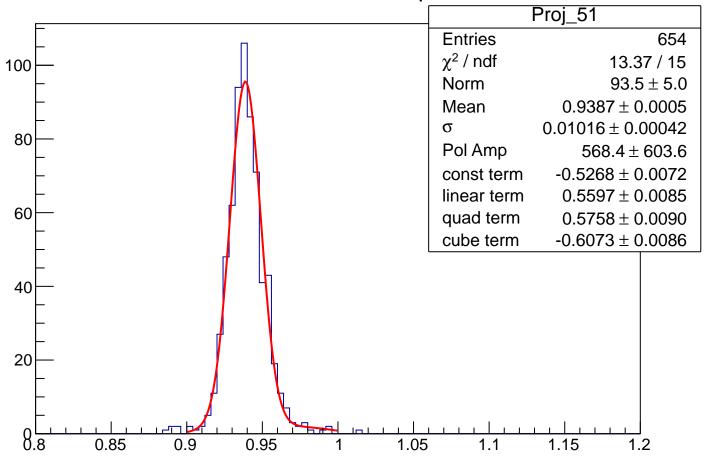
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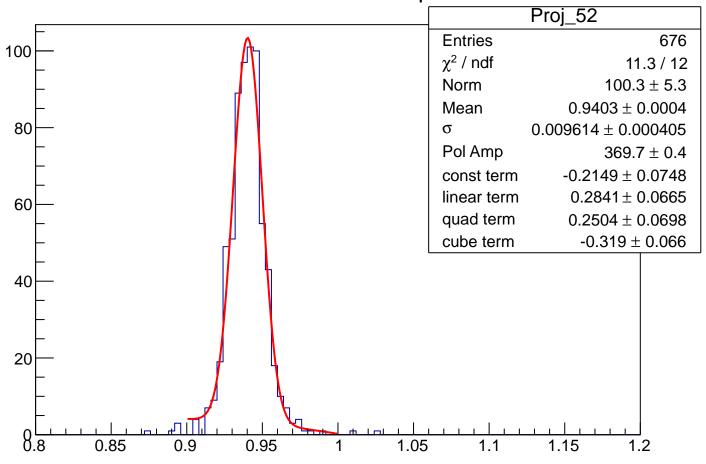
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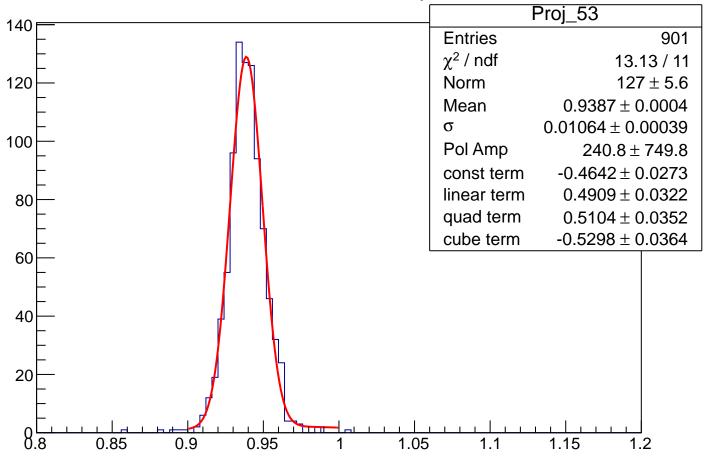
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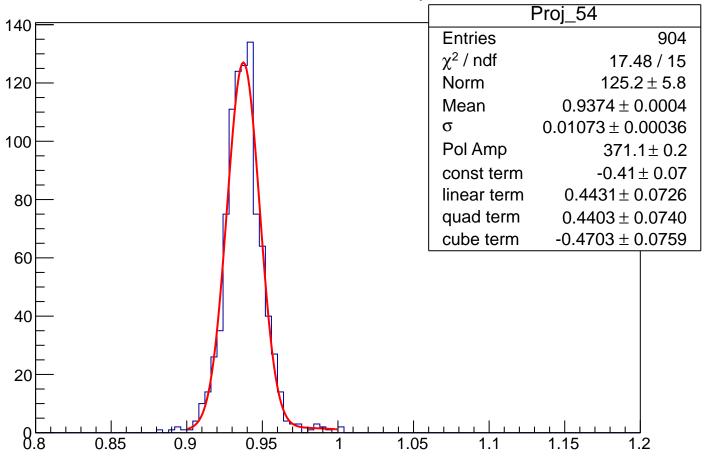
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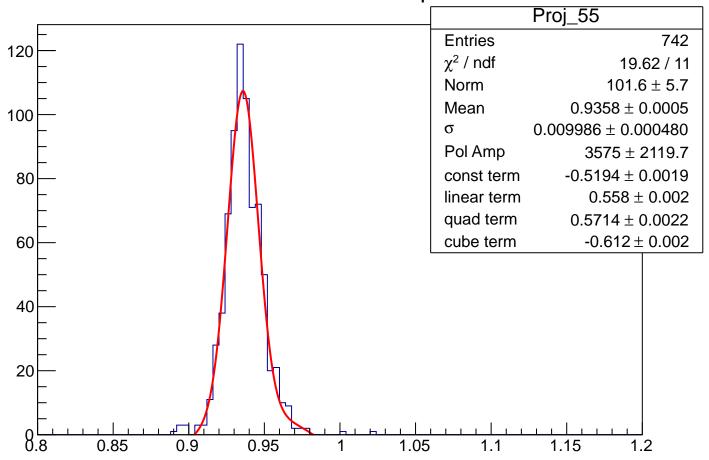
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PhiThetaMassPip Proj\_56 **Entries** 773  $\chi^2$  / ndf 14.79 / 13 Norm 106.1 ± 5.2 100  $0.9381 \pm 0.0005$ Mean σ  $0.0104 \pm 0.0004$ Pol Amp  $1327 \pm 978.4$ 80 const term  $-0.4443 \pm 0.0042$  $0.4873 \pm 0.0046$ linear term quad term  $0.4701 \pm 0.0047$ 60  $-0.5132 \pm 0.0045$ cube term 40 20

1.05

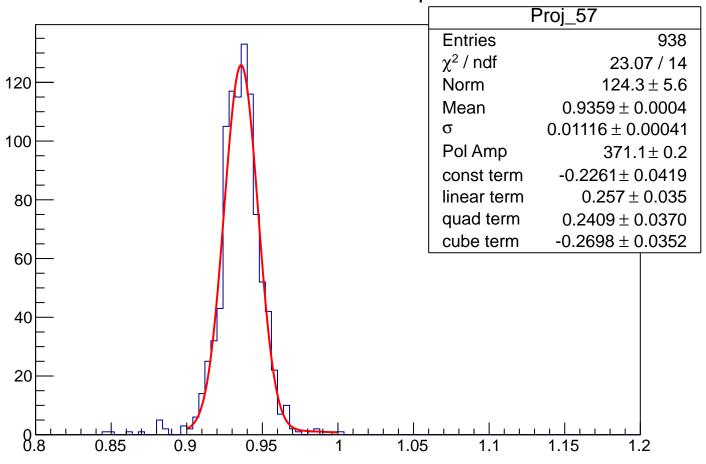
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PhiThetaMassPip Proj\_58 **Entries** 865  $\chi^2$  / ndf 16.5 / 13 120 Norm  $114.1 \pm 5.5$ Mean  $0.9353 \pm 0.0004$ σ  $0.01059 \pm 0.00044$ 100 Pol Amp  $369.3 \pm 0.3$ const term  $-0.1961 \pm 0.0537$ 80 linear term  $0.2935 \pm 0.0419$ quad term  $0.2447 \pm 0.0459$  $-0.3425 \pm 0.0442$ cube term 60 40 20

1.05

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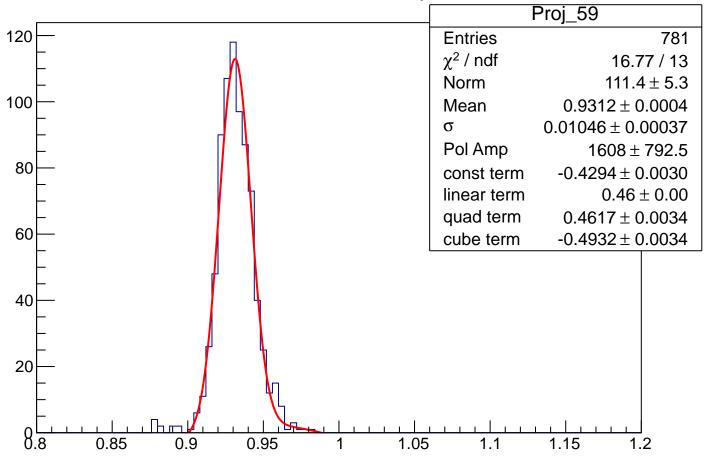
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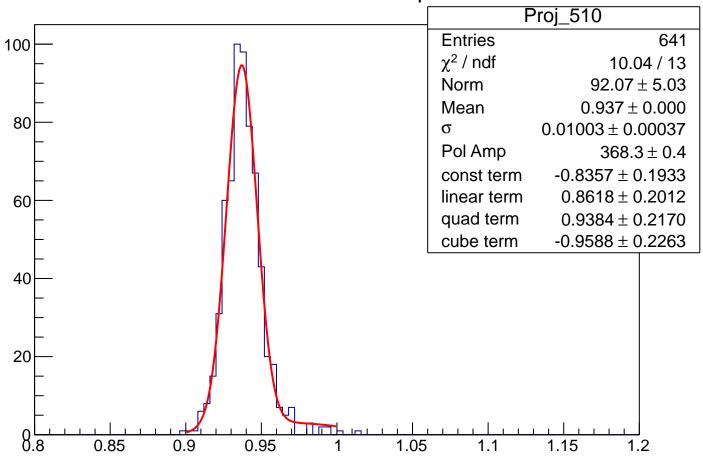
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PhiThetaMassPip Proj\_511 **Entries** 585 80  $\chi^2$  / ndf 15 / 15 Norm  $80.08 \pm 4.22$ 70 Mean  $0.9374 \pm 0.0001$ σ  $0.01073 \pm 0.00041$ 60 Pol Amp  $369.4 \pm 0.4$ const term  $-0.6521 \pm 0.1262$ 50 linear term  $0.6805 \pm 0.1258$ quad term  $0.6986 \pm 0.1314$  $-0.7236 \pm 0.1319$ cube term 40 30 20 10 8.8

1.05

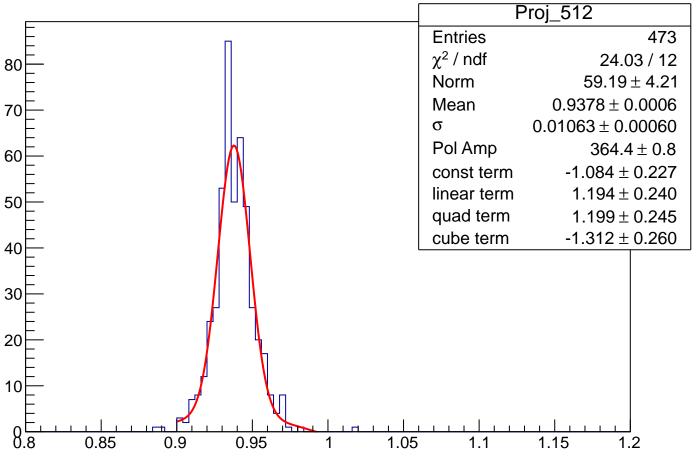
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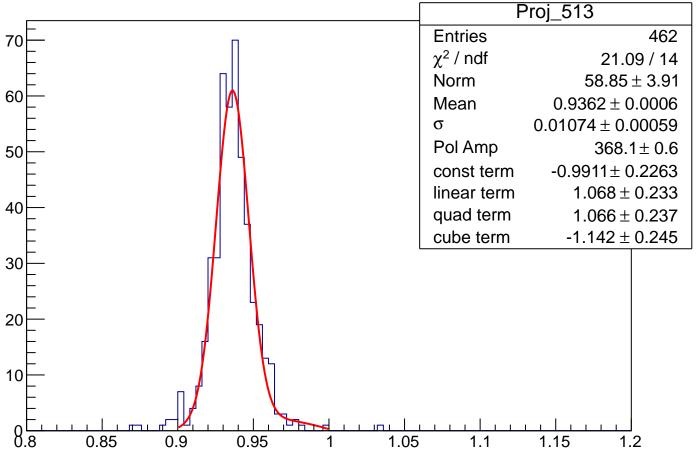
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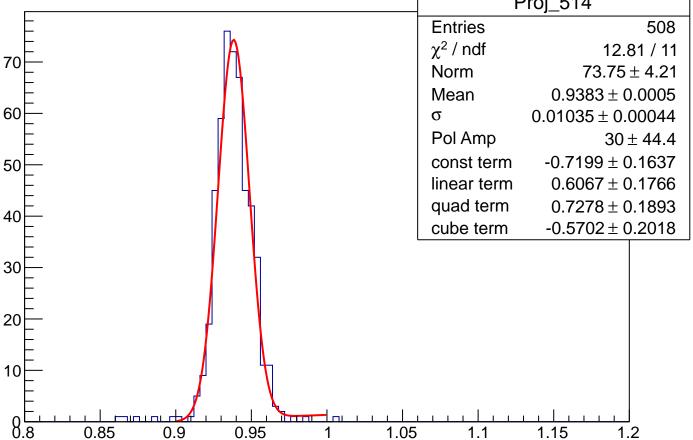
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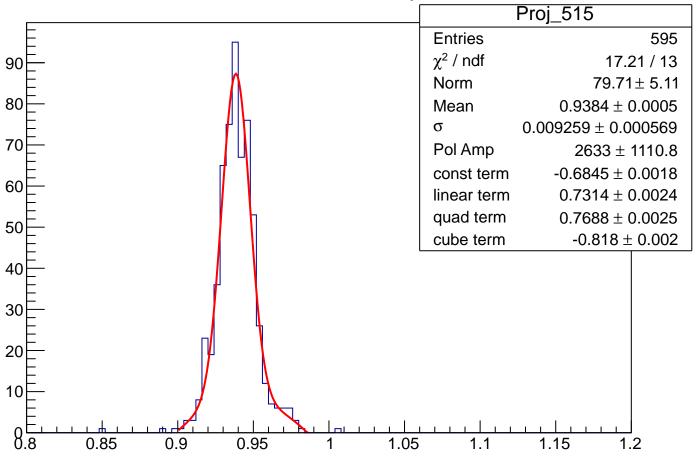
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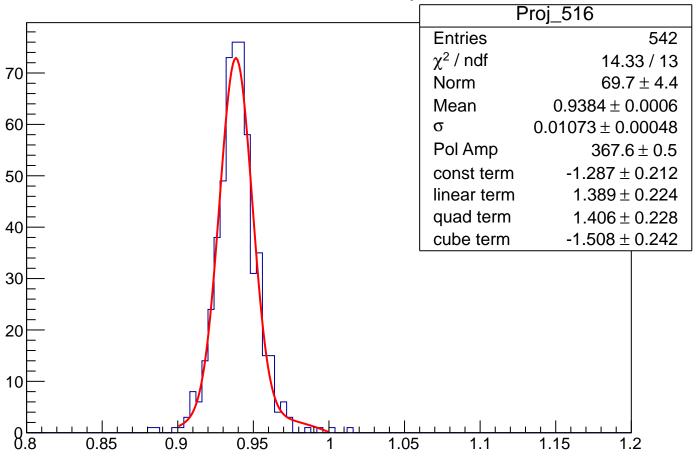




PhiThetaMassPip Proj\_514 **Entries**  $\chi^2$  / ndf Norm Mean σ Pol Amp const term linear term quad term







PhiThetaMassPip Proj\_517 **Entries** 341 50  $\chi^2$  / ndf 11.46 / 14 Norm  $39.75 \pm 3.29$  $0.9401 \pm 0.0008$ Mean 40 σ  $0.0103 \pm 0.0007$ Pol Amp  $124.4 \pm 75.2$ const term  $-1.364 \pm 0.043$  $1.589 \pm 0.044$ linear term 30 quad term  $1.508 \pm 0.045$ cube term  $-1.726 \pm 0.045$ 20 10

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PhiThetaMassPip Proj\_518 **Entries** 315  $\chi^2$  / ndf 11.78 / 14 40 Norm  $37.5 \pm 3.2$ Mean  $0.9341 \pm 0.0009$ 35 σ  $0.01108 \pm 0.00069$ Pol Amp  $366.1 \pm 0.7$ 30 const term  $-1.341 \pm 0.281$ linear term  $1.452 \pm 0.296$ 25 quad term  $1.432 \pm 0.296$ cube term  $-1.545 \pm 0.311$ 20 15 10 5

1.05

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8.8

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PhiThetaMassPip Proj\_519 **Entries** 489  $\chi^2$  / ndf 18.03 / 12 80 Norm  $65.04 \pm 4.24$ Mean  $0.9355 \pm 0.0006$ 70 σ  $0.01053 \pm 0.00061$ Pol Amp  $253.4 \pm 183.0$ 60 const term  $-1.456 \pm 0.017$ linear term  $1.534 \pm 0.021$ 50 quad term  $1.607 \pm 0.022$ cube term  $-1.683 \pm 0.020$ 40 30 20 10

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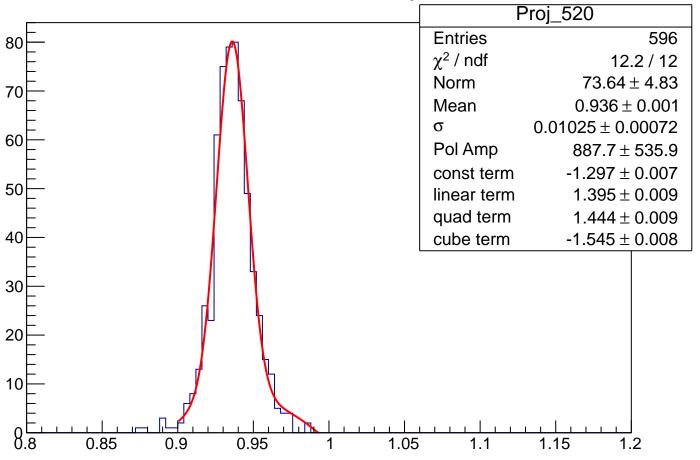
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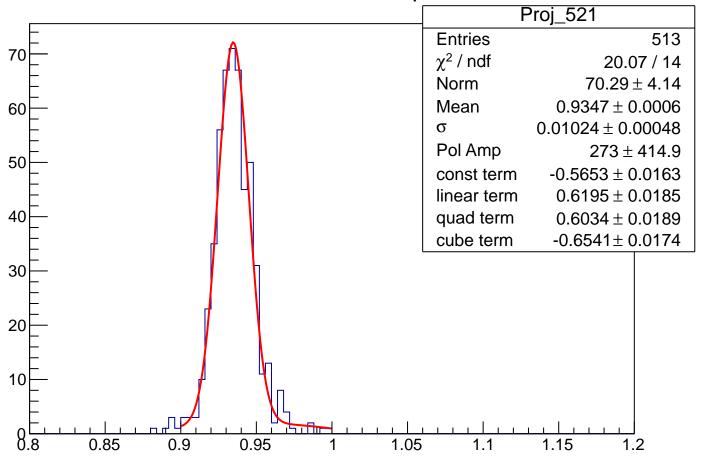
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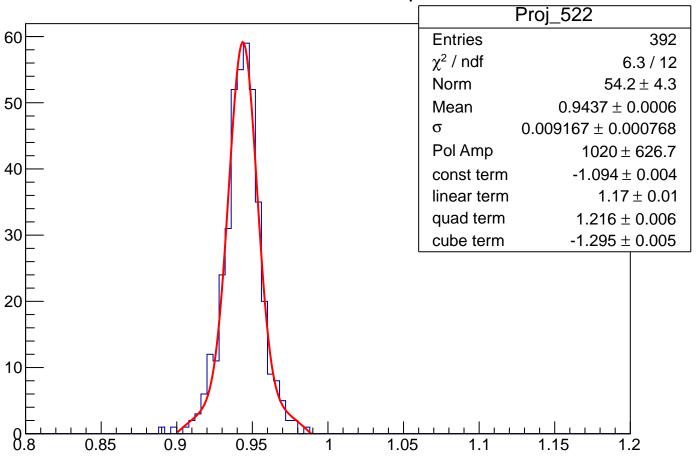
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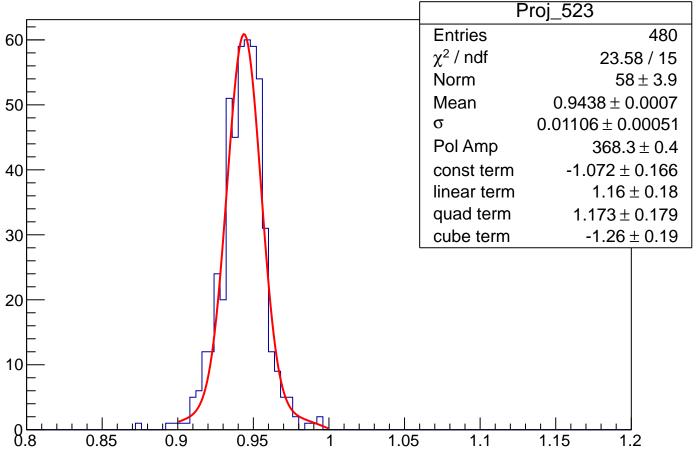
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0.85









PhiThetaMassPip Proj\_60 **Entries** 489 70  $\chi^2$  / ndf 16.17 / 13 Norm  $63.62 \pm 4.26$ 60 Mean  $0.9408 \pm 0.0006$ σ  $0.01034 \pm 0.00047$ Pol Amp  $366.2 \pm 0.5$ 50 const term  $-1.256 \pm 0.245$ linear term  $1.348 \pm 0.258$ 40 quad term  $1.391 \pm 0.268$ cube term  $-1.482 \pm 0.283$ 30 20 10

1.05

1.1

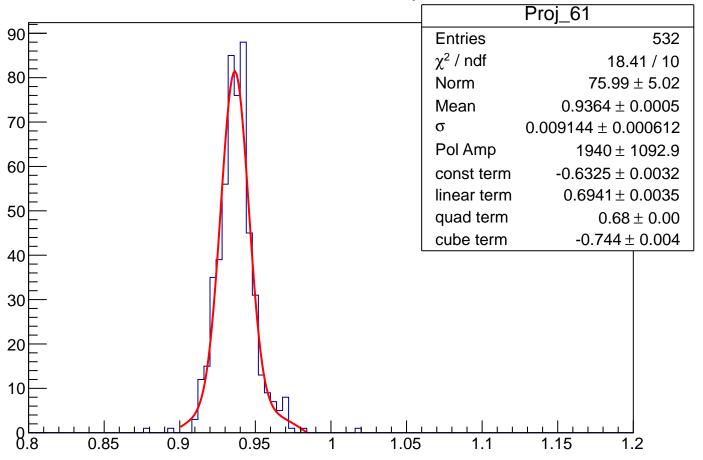
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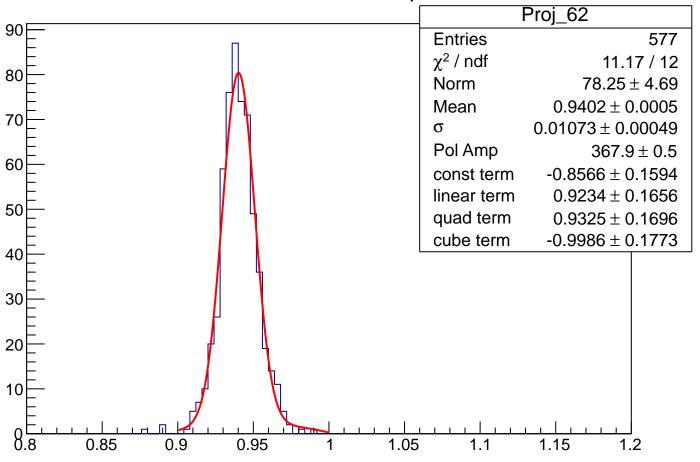
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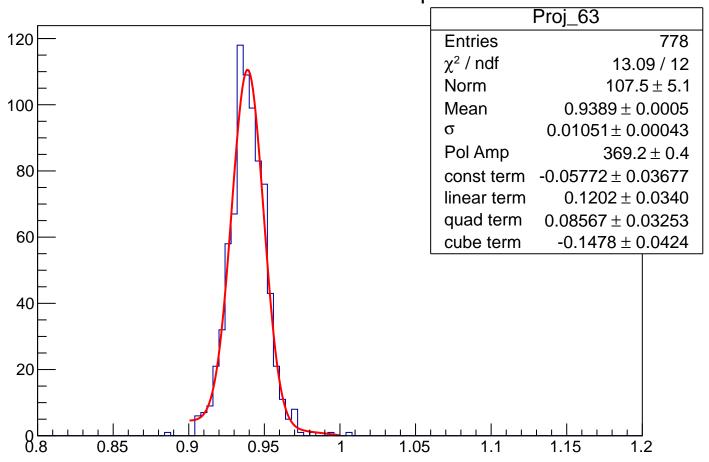
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0.9







PhiThetaMassPip Proj\_64 **Entries** 781  $\chi^2$  / ndf 22.79 / 15 120 Norm  $113.3 \pm 5.7$ Mean  $0.937 \pm 0.000$ 100 σ  $0.01004 \pm 0.00040$ Pol Amp  $371.1 \pm 0.3$ const term  $-0.3459 \pm 0.1050$ 80 linear term  $0.3826 \pm 0.1053$ quad term  $0.3724 \pm 0.1067$ cube term  $-0.4061 \pm 0.1085$ 60 40 20

1.05

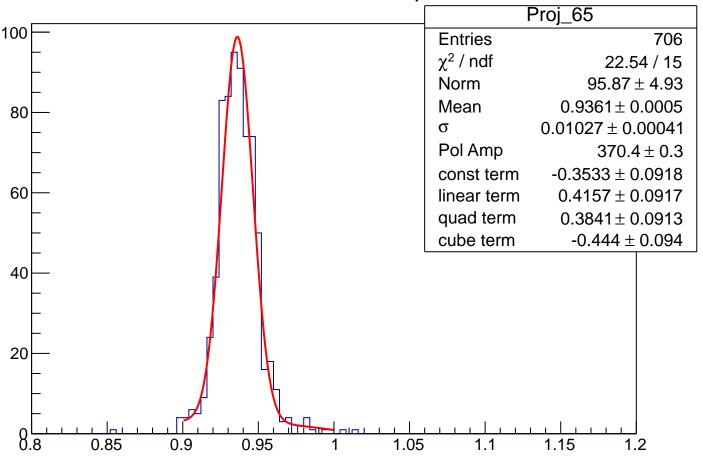
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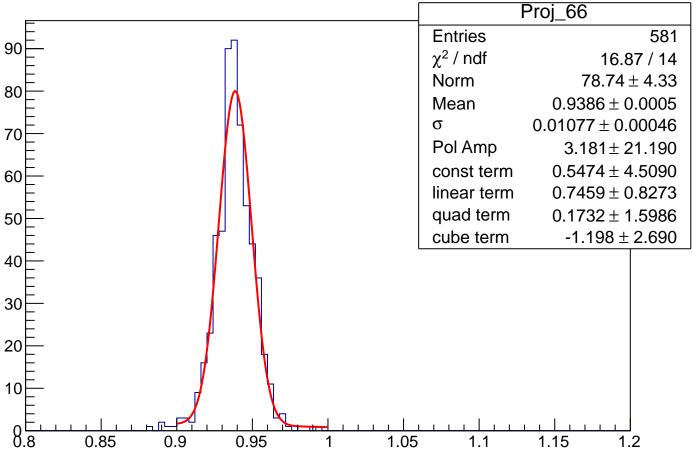
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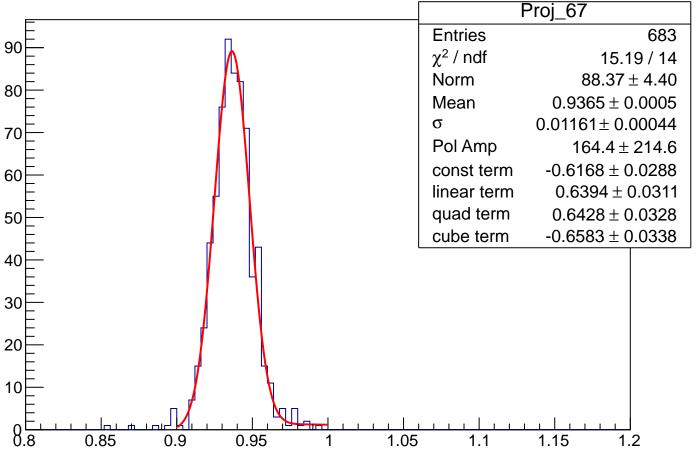
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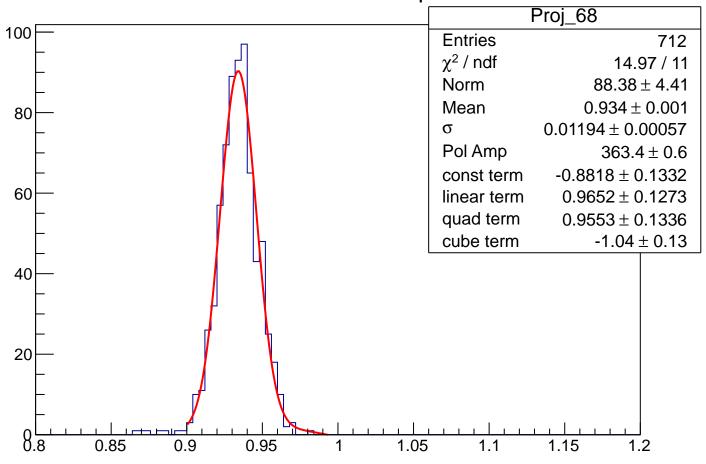
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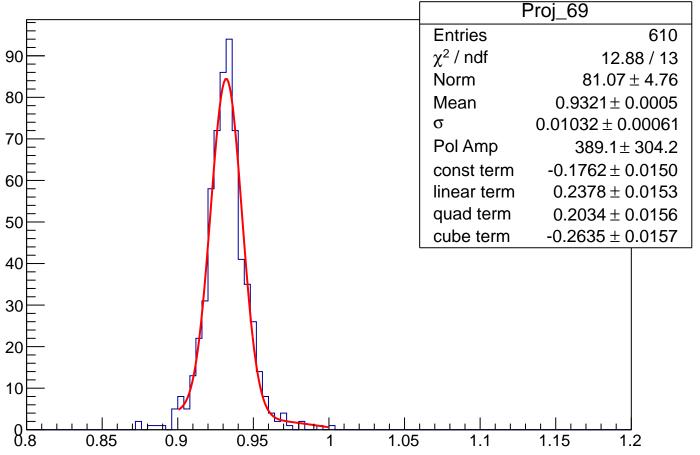
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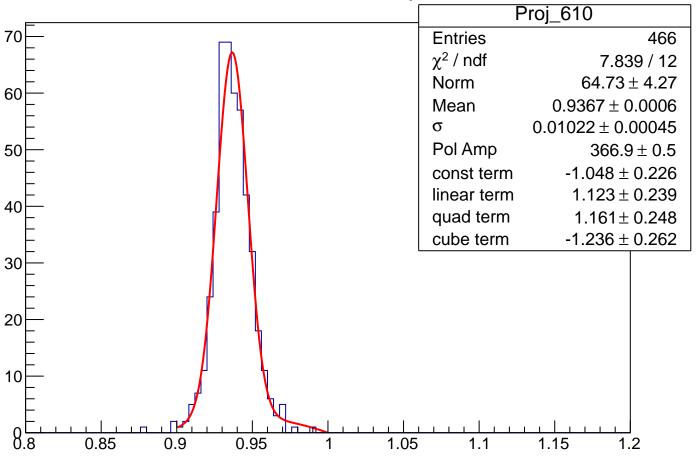












PhiThetaMassPip Proj\_611 **Entries** 422 60  $\chi^2$  / ndf 6.316 / 12 Norm  $59.14 \pm 3.94$ Mean  $0.9377 \pm 0.0006$ 50 σ  $0.01041 \pm 0.00047$ Pol Amp  $366.9 \pm 0.6$ const term  $-1.117 \pm 0.283$ 40 linear term  $1.174 \pm 0.296$ quad term  $1.226 \pm 0.309$ cube term  $-1.283 \pm 0.324$ 30 20 10 8.8

1.05

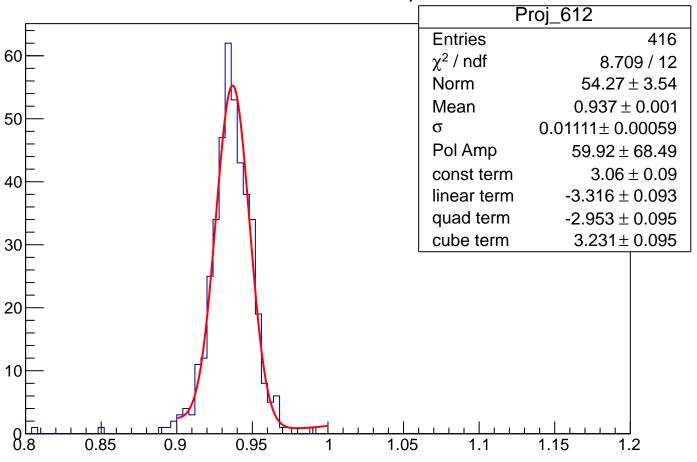
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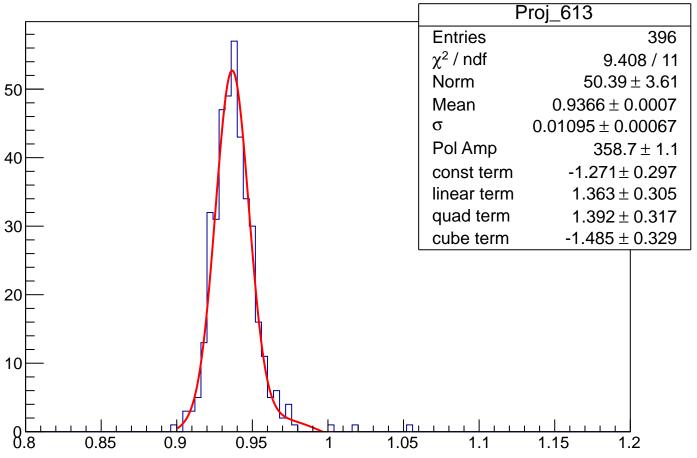
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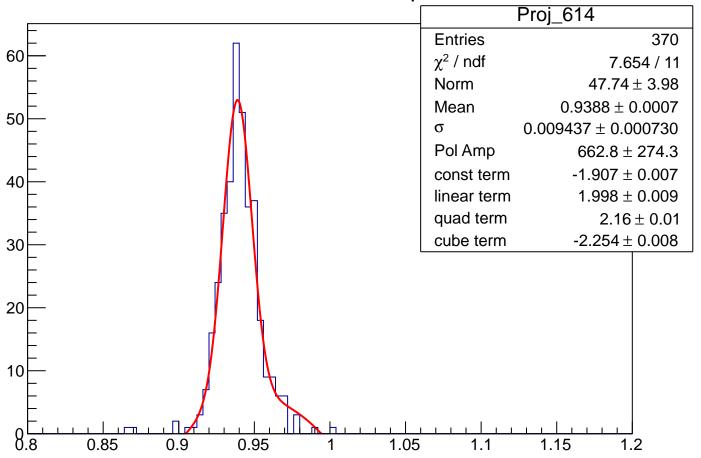
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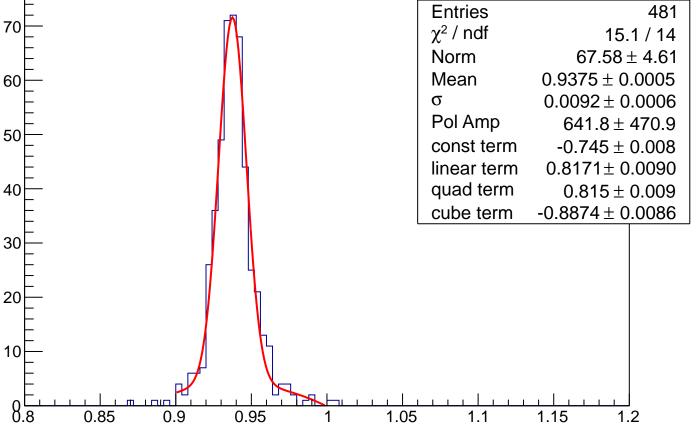
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PhiThetaMassPip Proj\_615 **Entries** 481  $\chi^2$  / ndf 15.1 / 14 Norm  $67.58 \pm 4.61$  $0.9375 \pm 0.0005$ Mean σ  $0.0092 \pm 0.0006$ Pol Amp  $641.8 \pm 470.9$ const term  $-0.745 \pm 0.008$ linear term  $0.8171 \pm 0.0090$ quad term  $0.815 \pm 0.009$  $-0.8874 \pm 0.0086$ cube term



PhiThetaMassPip Proj\_616 **Entries** 463 60  $\chi^2$  / ndf 11.69 / 15 Norm  $59.58 \pm 3.85$ Mean  $0.9393 \pm 0.0006$ 50 σ  $0.01087 \pm 0.00056$ Pol Amp  $443.8 \pm 382.5$ const term  $-1.008 \pm 0.009$ 40 linear term  $1.071 \pm 0.011$ quad term  $1.107 \pm 0.011$ cube term  $-1.17 \pm 0.01$ 30 20 10 8.8

1.05

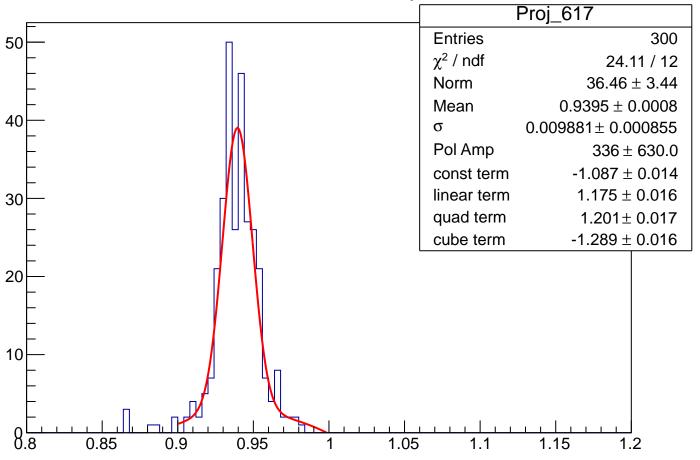
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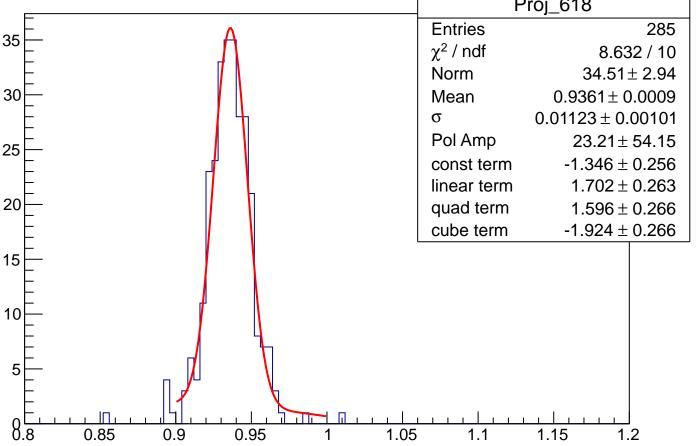
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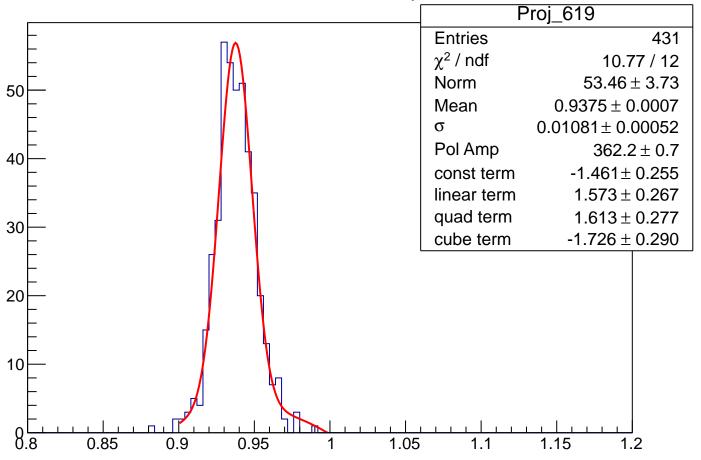
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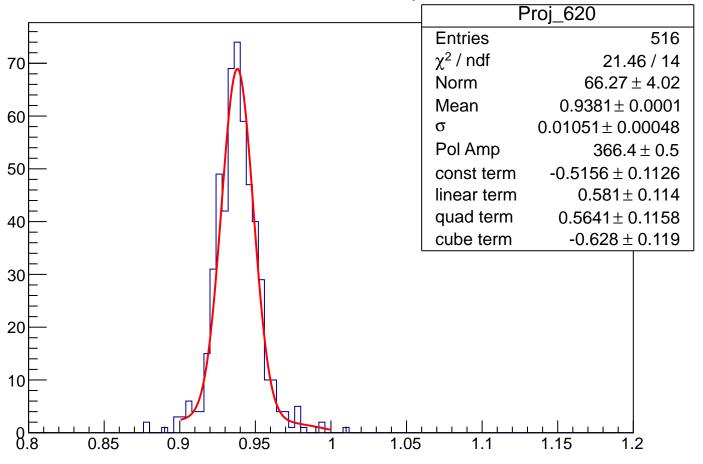
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PhiThetaMassPip Proj\_618 **Entries** 285  $\chi^2$  / ndf 8.632 / 10 Norm  $34.51 \pm 2.94$ Mean  $0.9361 \pm 0.0009$ σ  $0.01123 \pm 0.00101$ Pol Amp  $23.21 \pm 54.15$ const term  $-1.346 \pm 0.256$ linear term  $1.702 \pm 0.263$ quad term  $1.596 \pm 0.266$ cube term  $-1.924 \pm 0.266$ 







PhiThetaMassPip Proj\_621 **Entries** 397  $\chi^2$  / ndf 7.127 / 12 Norm  $52.81 \pm 3.67$ 50 Mean  $0.9354 \pm 0.0007$ σ  $0.01084 \pm 0.00058$ Pol Amp  $366.3 \pm 0.7$ 40 const term  $-0.8713 \pm 0.1958$ linear term  $0.9547 \pm 0.2075$ quad term  $0.9556 \pm 0.2101$ 30 cube term  $-1.042 \pm 0.224$ 20 10 8.8

1.05

1.15

1.2

0.85

0.9

PhiThetaMassPip Proj\_622 **Entries** 312  $\chi^2$  / ndf 12.59 / 12 50 Norm  $38.29 \pm 3.32$  $0.9432 \pm 0.0008$ Mean σ  $0.0106 \pm 0.0006$ 40 Pol Amp  $363.5 \pm 0.8$ const term  $-1.621 \pm 0.373$  $1.717 \pm 0.394$ linear term 30 quad term  $1.799 \pm 0.414$ cube term  $-1.895 \pm 0.437$ 20 10 8.8 0.85 0.9 0.95 1.05 1.15

PhiThetaMassPip Proj\_623 **Entries** 356 50  $\chi^2$  / ndf 8.071 / 16 Norm  $46.35 \pm 3.31$ Mean  $0.9426 \pm 0.0007$ 40 σ  $0.01099 \pm 0.00056$ Pol Amp  $1.027 \pm 44.333$ const term  $-0.8592 \pm 0.1329$  $0.7243 \pm 0.4825$ linear term 30 quad term  $1.132 \pm 0.313$  $0.2836 \pm 2.7190$ cube term 20 10

1.05

1.15

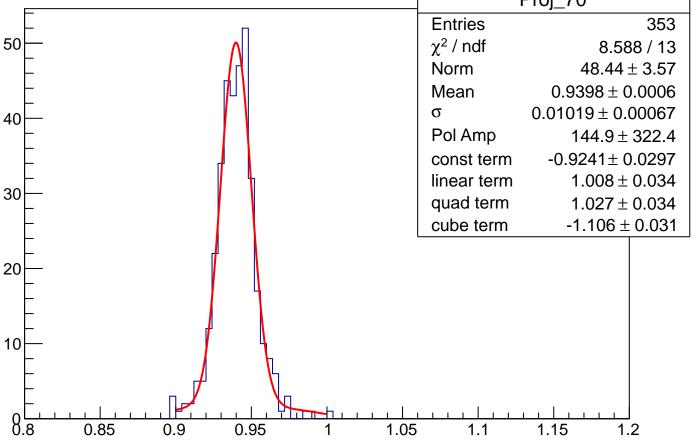
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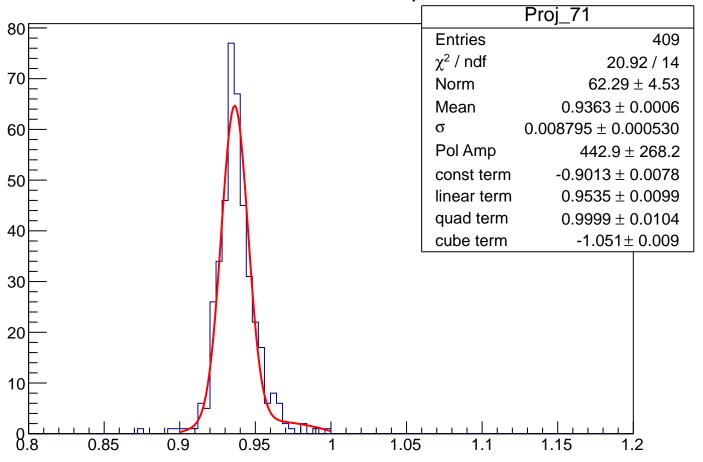
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0.85

0.9

PhiThetaMassPip Proj\_70 **Entries** 353  $\chi^2$  / ndf 8.588 / 13 Norm  $48.44 \pm 3.57$ Mean  $0.9398 \pm 0.0006$ σ  $0.01019 \pm 0.00067$ Pol Amp  $144.9 \pm 322.4$ const term  $-0.9241 \pm 0.0297$ linear term  $1.008 \pm 0.034$ quad term  $1.027 \pm 0.034$ cube term  $-1.106 \pm 0.031$ 





PhiThetaMassPip Proj\_72 **Entries** 461  $\chi^2$  / ndf 21.97 / 14 60 Norm  $66.01 \pm 3.86$  $0.9412 \pm 0.0005$ Mean σ  $0.01016 \pm 0.00039$ 50 Pol Amp  $1.408 \pm 193.793$ const term  $-0.6981 \pm 2.5727$ linear term  $0.2133 \pm 3.4947$ 40 quad term  $0.6434 \pm 1.6744$ cube term  $0.5461 \pm 13.3285$ 30 20 10

1.05

1.1

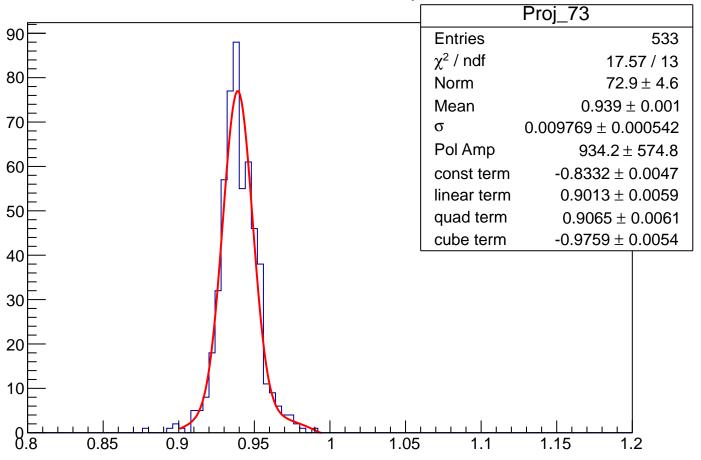
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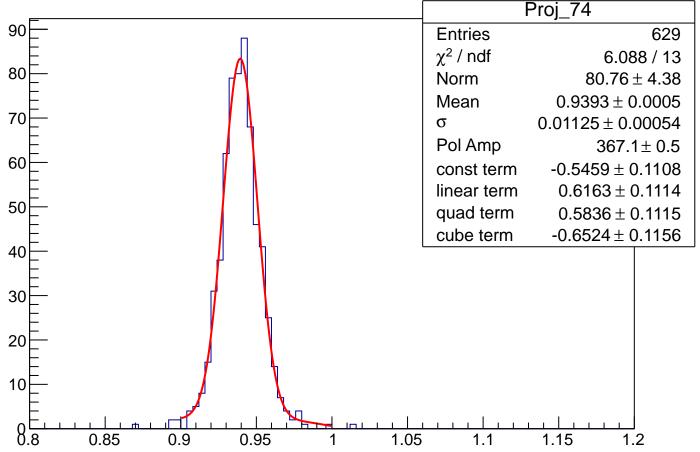
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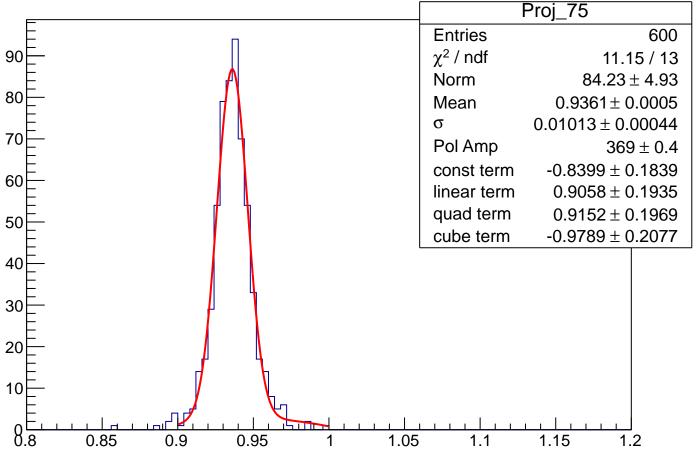
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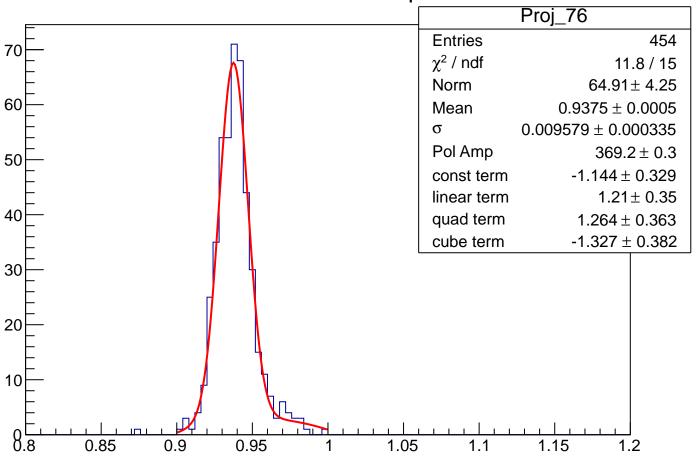
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0.9









PhiThetaMassPip Proj\_77 **Entries** 592  $\chi^2$  / ndf 80 12.3 / 14 Norm  $81.67 \pm 4.53$ Mean  $0.9372 \pm 0.0005$ 70 σ  $0.01026 \pm 0.00042$ Pol Amp  $367.9 \pm 0.4$ 60 const term  $-0.5788 \pm 0.1318$ linear term  $0.6309 \pm 0.1328$ 50 quad term  $0.6307 \pm 0.1373$  $-0.6804 \pm 0.1397$ cube term 40 30 20 10

1.05

1.1

1.15

1.2

8.8

0.85

0.9

PhiThetaMassPip Proj\_78 **Entries** 502 80  $\chi^2$  / ndf 18.05 / 13 Norm  $66.06 \pm 4.33$ 70 Mean  $0.934 \pm 0.001$ σ  $0.01024 \pm 0.00060$ 60 Pol Amp  $366.8 \pm 0.6$ const term  $-0.5954 \pm 0.1510$ 50 linear term  $0.6803 \pm 0.1500$ quad term  $0.6466 \pm 0.1519$  $-0.7306 \pm 0.1525$ cube term 40 30 20 10

1.05

1.1

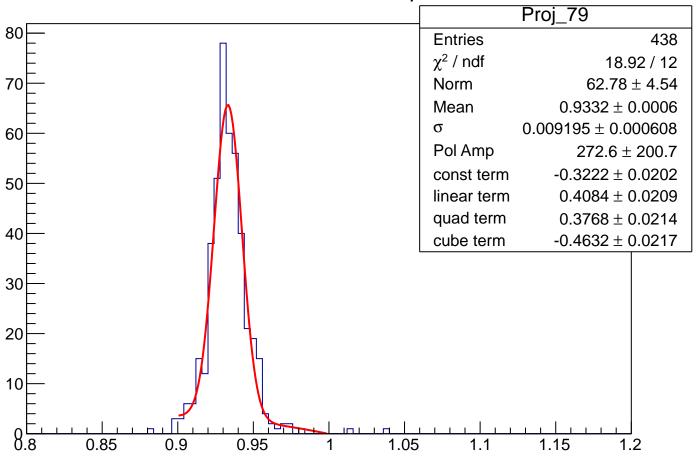
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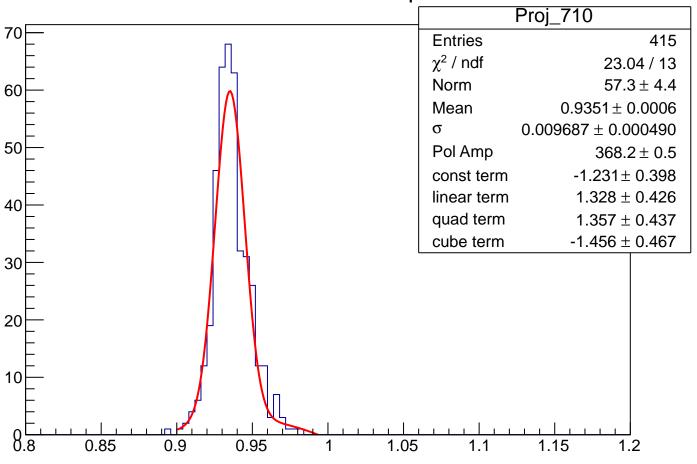
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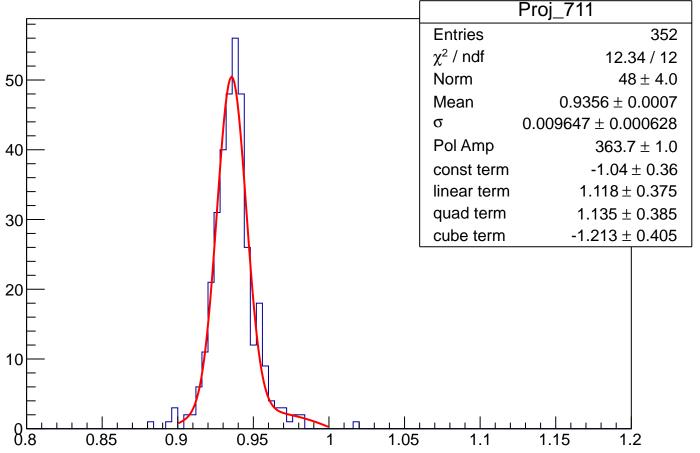
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0.85

0.9







PhiThetaMassPip Proj\_712 **Entries** 335 50  $\chi^2$  / ndf 15.11 / 13 Norm  $39.33 \pm 3.23$ Mean  $0.9365 \pm 0.0008$ 40 σ  $0.01099 \pm 0.00070$ Pol Amp  $363.3 \pm 0.9$ const term  $-1.293 \pm 0.271$ linear term  $1.419 \pm 0.289$ 30 quad term  $1.41 \pm 0.29$ cube term  $-1.539 \pm 0.310$ 20 10

1.05

1.15

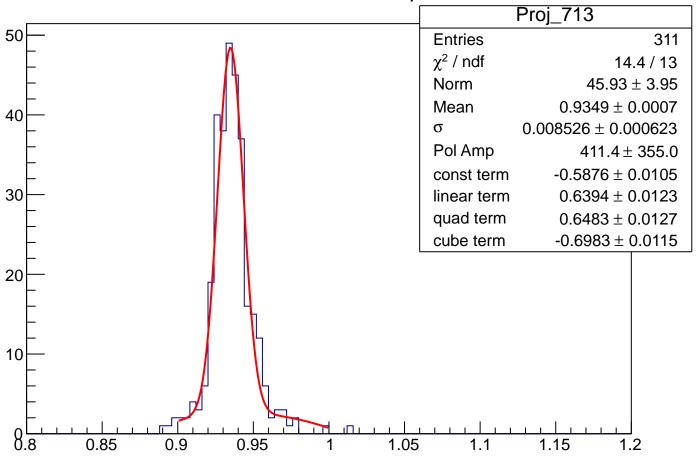
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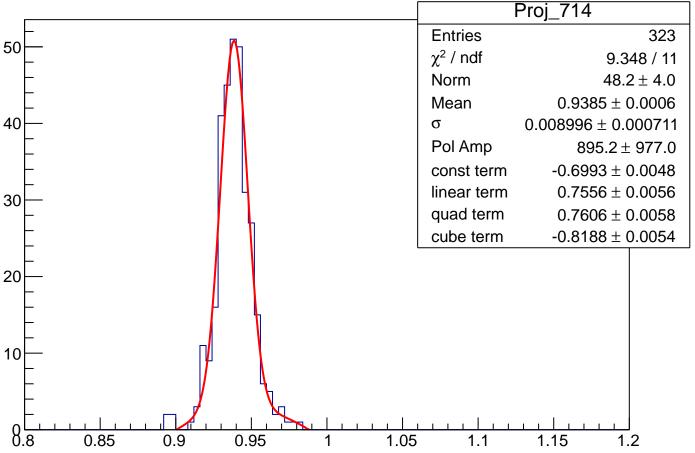
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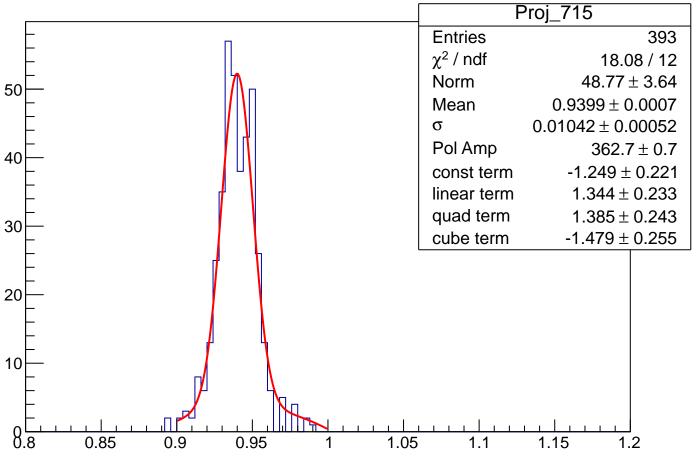
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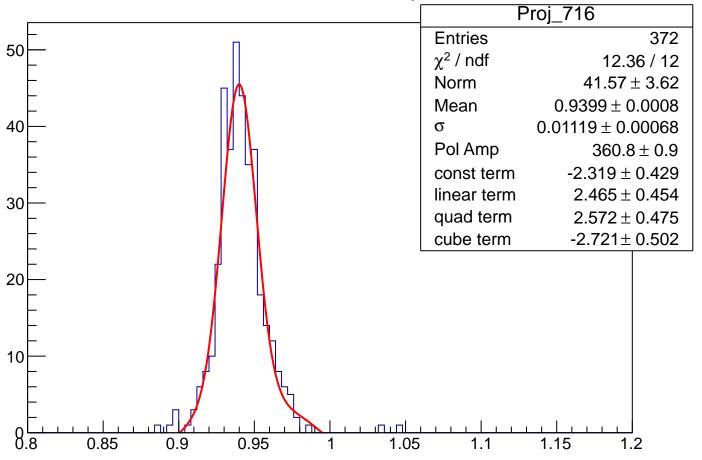
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0.95

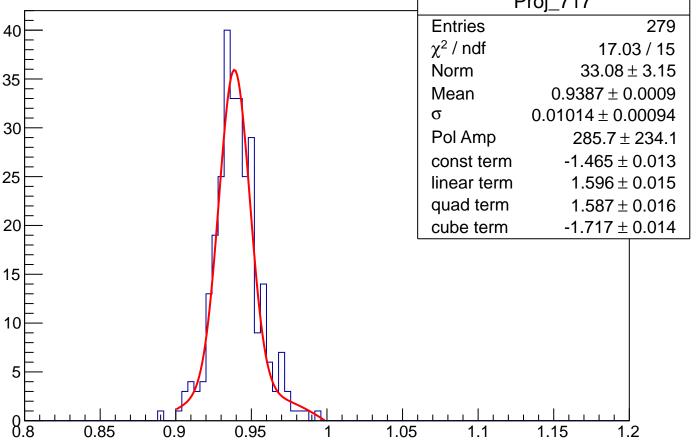




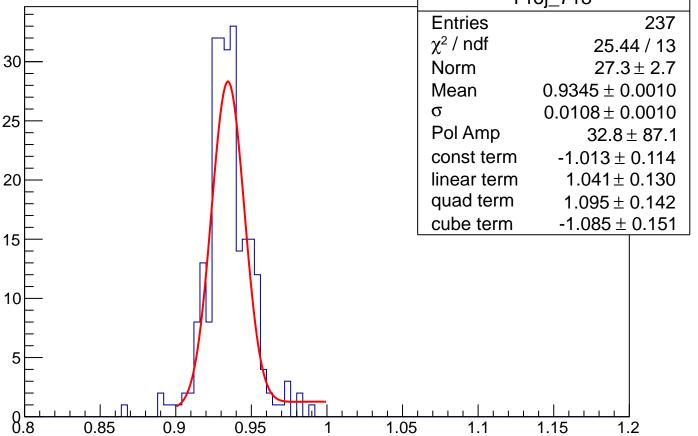


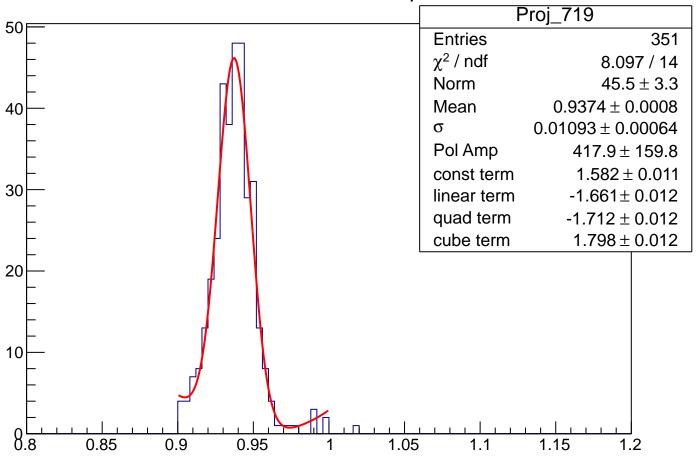


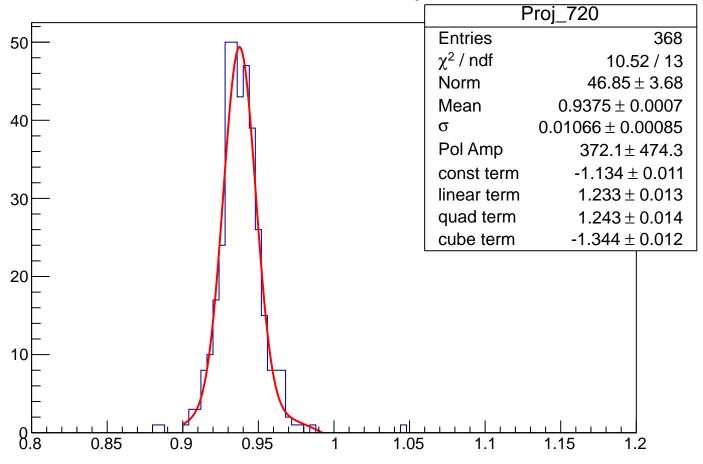
PhiThetaMassPip Proj\_717 **Entries** 279  $\chi^2$  / ndf 17.03 / 15 Norm  $33.08 \pm 3.15$ Mean  $0.9387 \pm 0.0009$ σ  $0.01014 \pm 0.00094$ Pol Amp  $285.7 \pm 234.1$ const term  $-1.465 \pm 0.013$ linear term  $1.596 \pm 0.015$ quad term  $1.587 \pm 0.016$ cube term  $-1.717 \pm 0.014$ 

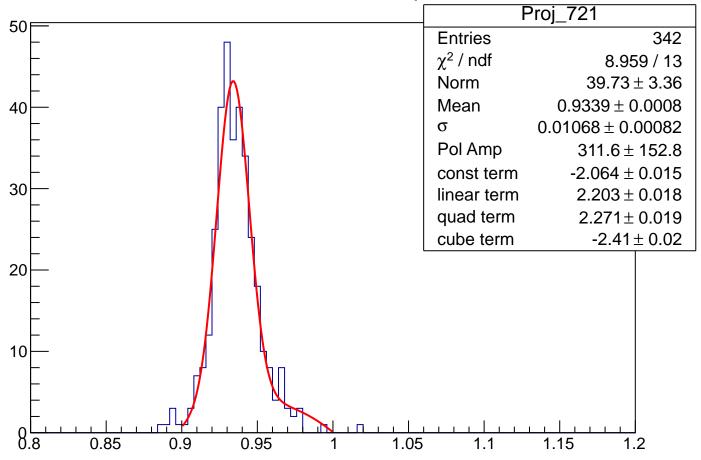


PhiThetaMassPip Proj\_718 **Entries** 237  $\chi^2$  / ndf 25.44 / 13 Norm  $27.3 \pm 2.7$  $0.9345 \pm 0.0010$ Mean σ  $0.0108 \pm 0.0010$ Pol Amp  $32.8 \pm 87.1$ const term  $-1.013 \pm 0.114$  $1.041 \pm 0.130$ linear term quad term  $1.095 \pm 0.142$  $-1.085 \pm 0.151$ cube term



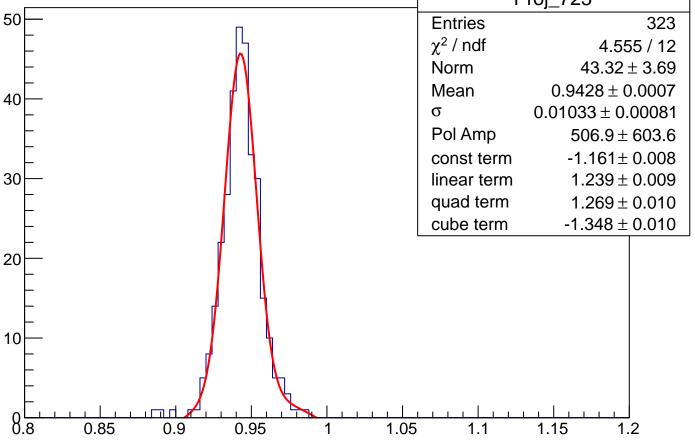






PhiThetaMassPip Proj\_722 **Entries** 267  $\chi^2$  / ndf 11.33 / 12 35 Norm  $38.33 \pm 3.14$ Mean  $0.9451 \pm 0.0008$ 30 σ  $0.01032 \pm 0.00076$ Pol Amp  $2900 \pm 1545.8$ 25 const term  $0.4171 \pm 0.0017$ linear term  $-0.4421 \pm 0.0019$ quad term  $-0.4559 \pm 0.0020$ 20  $0.4829 \pm 0.0019$ cube term 15 10 5 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

PhiThetaMassPip Proj\_723 **Entries** 323  $\chi^2$  / ndf 4.555 / 12 Norm  $43.32 \pm 3.69$ Mean  $0.9428 \pm 0.0007$ σ  $0.01033 \pm 0.00081$ Pol Amp  $506.9 \pm 603.6$ const term  $-1.161 \pm 0.008$ linear term  $1.239 \pm 0.009$ quad term  $1.269 \pm 0.010$ cube term  $-1.348 \pm 0.010$ 



PhiThetaMassPip Proj\_80 **Entries** 291  $\chi^2$  / ndf 8.838 / 14 35 Norm  $37.49 \pm 2.92$ Mean  $0.9417 \pm 0.0008$ 30 σ  $0.01124 \pm 0.00076$ Pol Amp  $21.03 \pm 29.62$ const term  $10.27 \pm 0.19$ 25 linear term  $-11.42 \pm 0.22$ quad term  $-10.06 \pm 0.23$ 20 cube term  $11.29 \pm 0.21$ 15 10 5 8.8

1.05

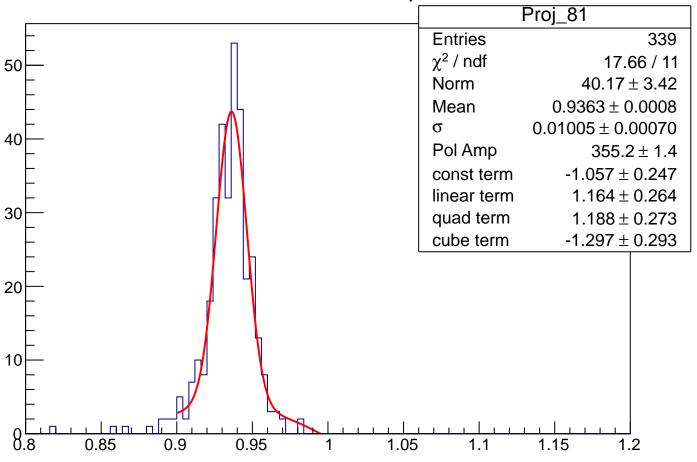
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1.2

0.85

0.9

0.95



PhiThetaMassPip Proj\_82 **Entries** 373 60  $\chi^2$  / ndf 7.515 / 10 Norm  $52.18 \pm 4.01$ Mean  $0.9411 \pm 0.0006$ 50 σ  $0.009606 \pm 0.000750$ Pol Amp  $297.7 \pm 230.7$ const term  $-1.617 \pm 0.016$ 40 linear term  $1.736 \pm 0.021$ quad term  $1.77 \pm 0.02$ cube term  $-1.887 \pm 0.019$ 30 20 10

1.05

1.1

1.15

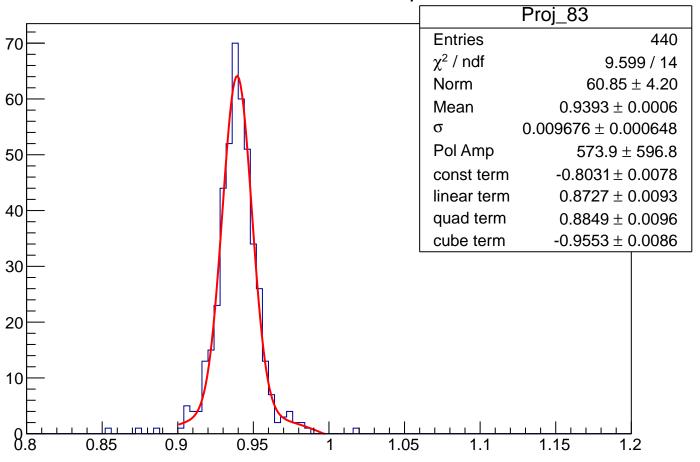
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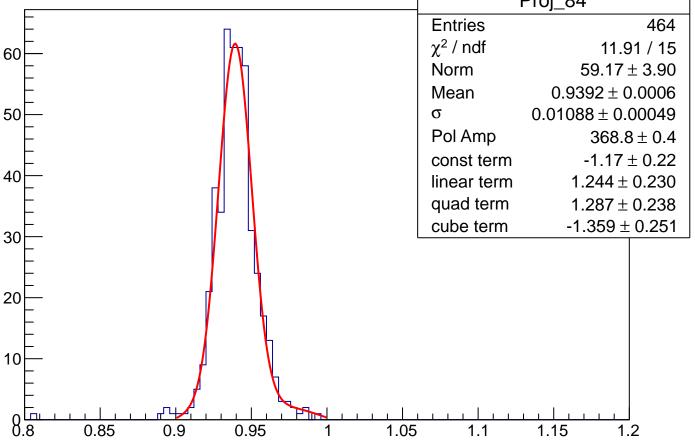
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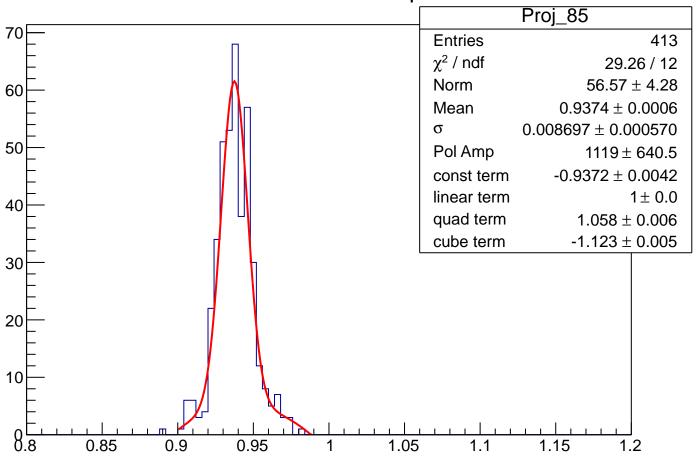
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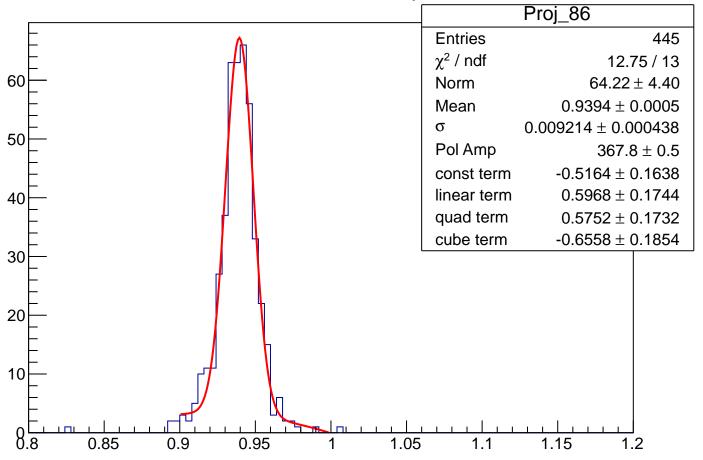
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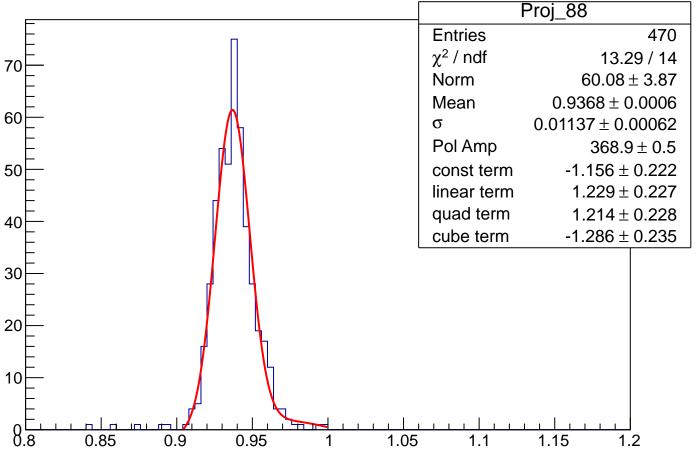
PhiThetaMassPip Proj\_84 **Entries** 464  $\chi^2$  / ndf 11.91 / 15 Norm  $59.17 \pm 3.90$ Mean  $0.9392 \pm 0.0006$  $0.01088 \pm 0.00049$ σ Pol Amp  $368.8 \pm 0.4$ const term  $-1.17 \pm 0.22$ linear term  $1.244 \pm 0.230$ quad term  $1.287 \pm 0.238$ cube term  $-1.359 \pm 0.251$ 

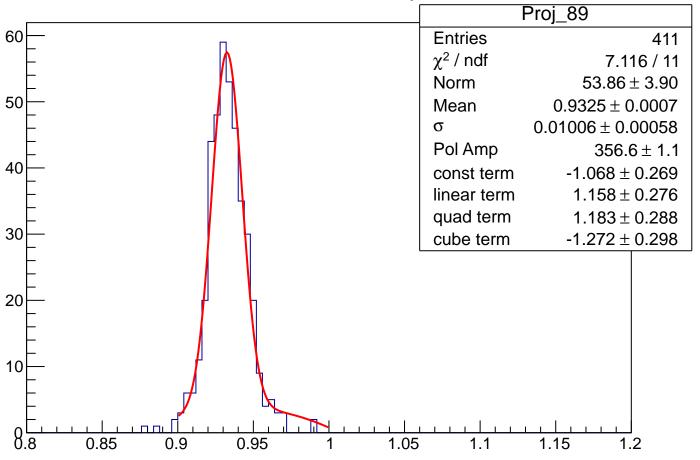


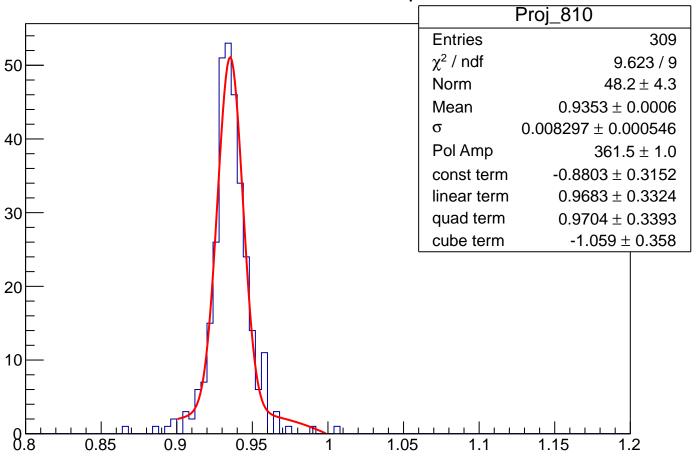


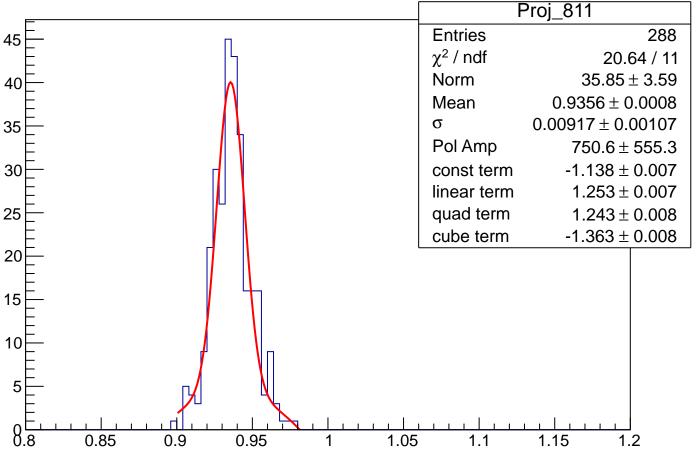


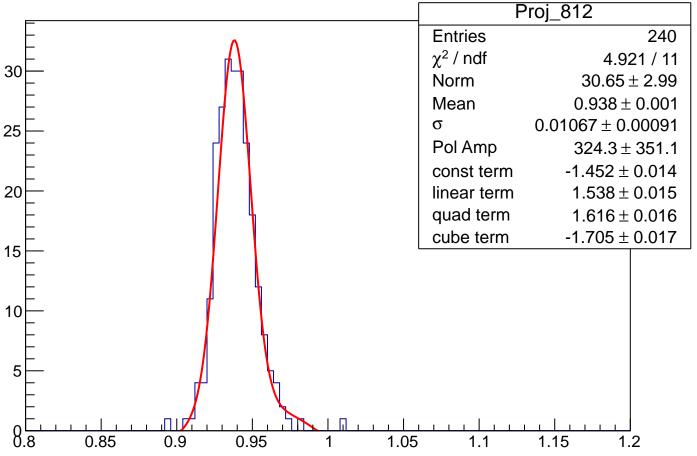
PhiThetaMassPip Proj\_87 **Entries** 462  $\chi^2$  / ndf 13.36 / 14 60 Norm  $54.95 \pm 3.49$  $0.9375 \pm 0.0007$ Mean 50 σ  $0.01203 \pm 0.00076$ Pol Amp  $367.2 \pm 0.6$ const term  $-0.6768 \pm 0.1374$ 40 linear term  $0.7363 \pm 0.1378$ quad term  $0.698 \pm 0.137$  $-0.756 \pm 0.140$ cube term 30 20 10 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

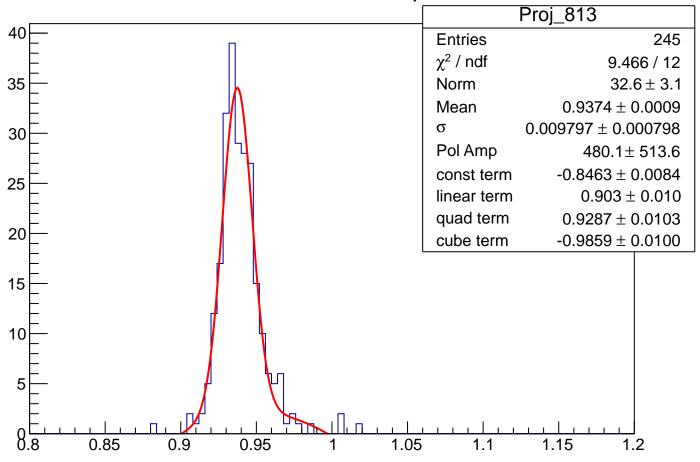




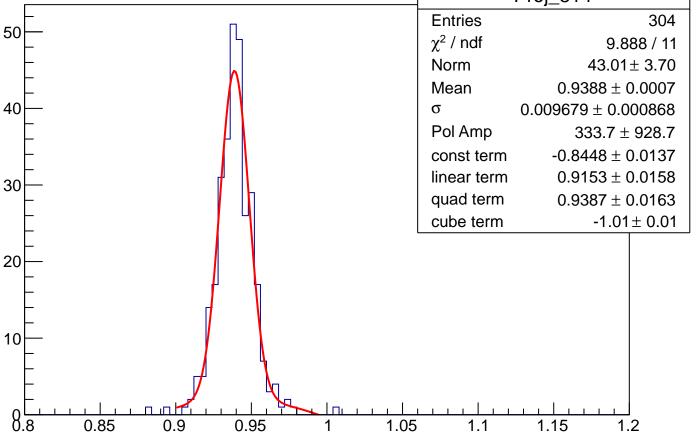


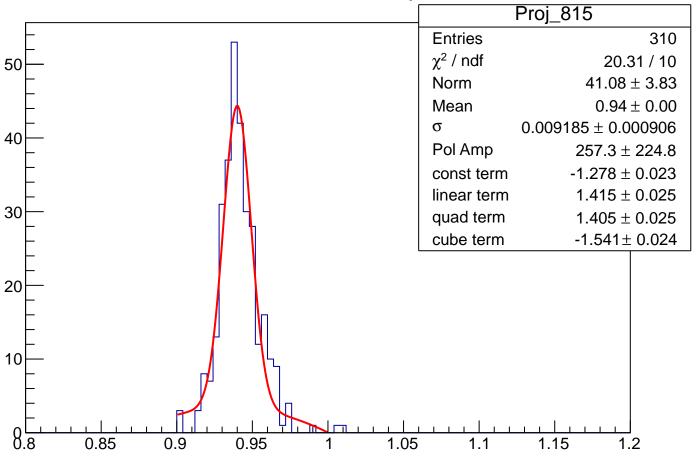


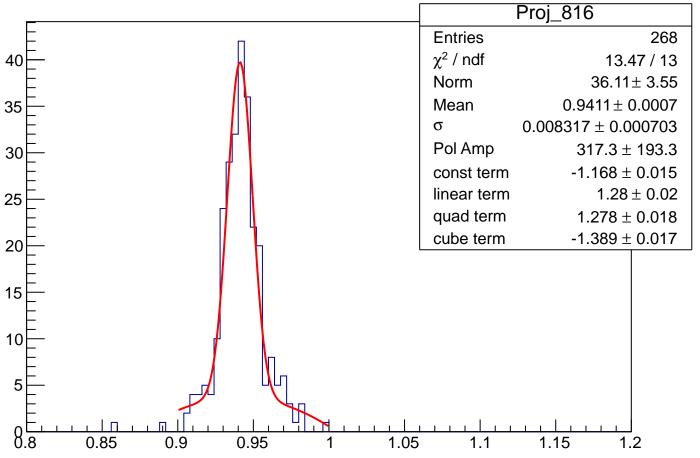


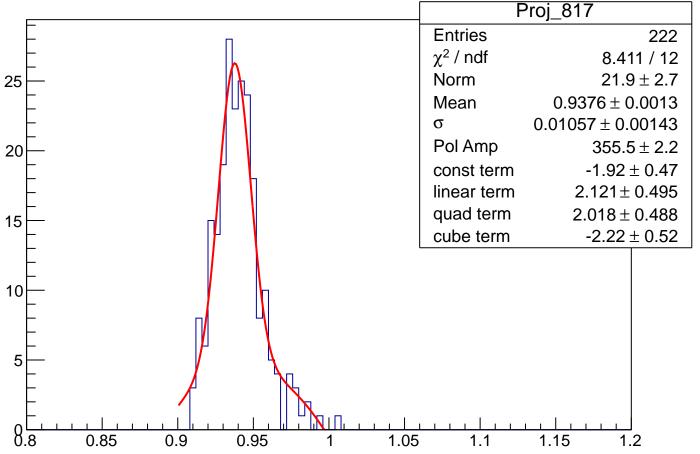


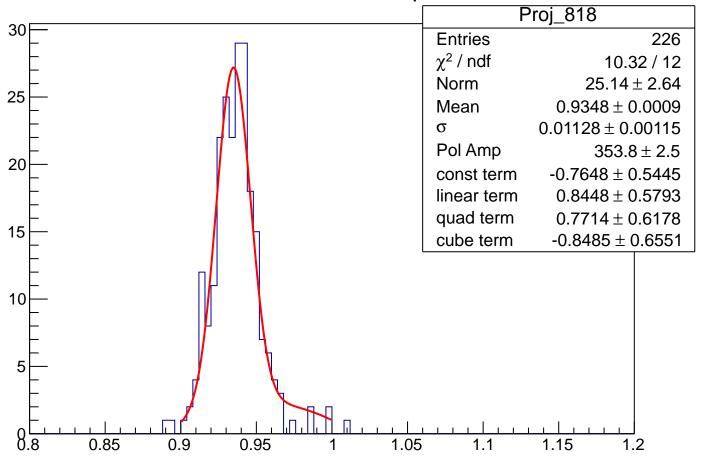
PhiThetaMassPip Proj\_814 **Entries**  $\chi^2$  / ndf Norm Mean σ Pol Amp const term linear term quad term

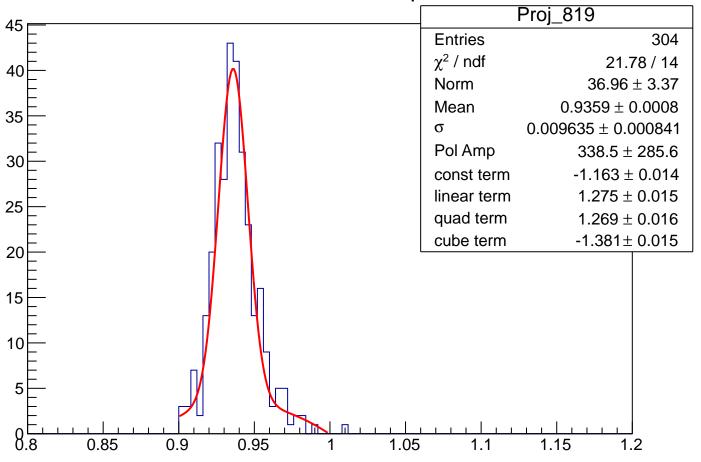


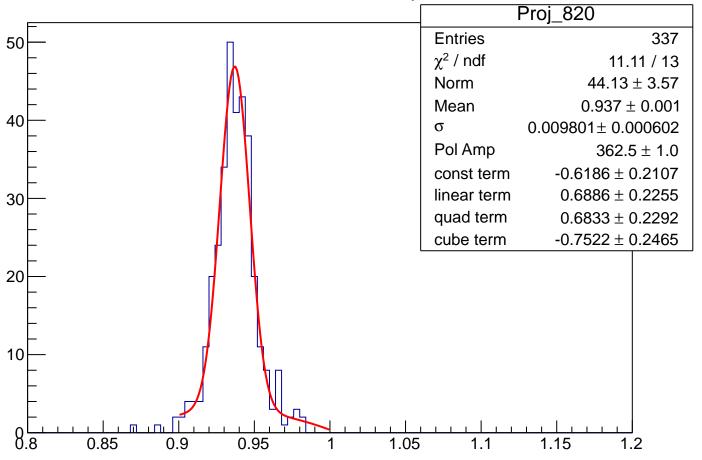


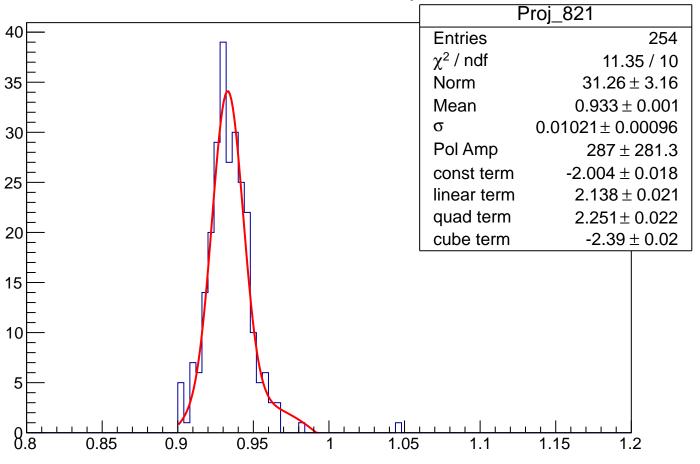


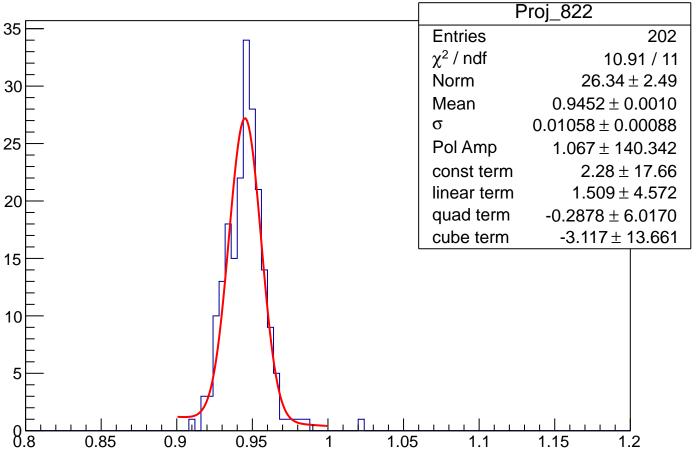


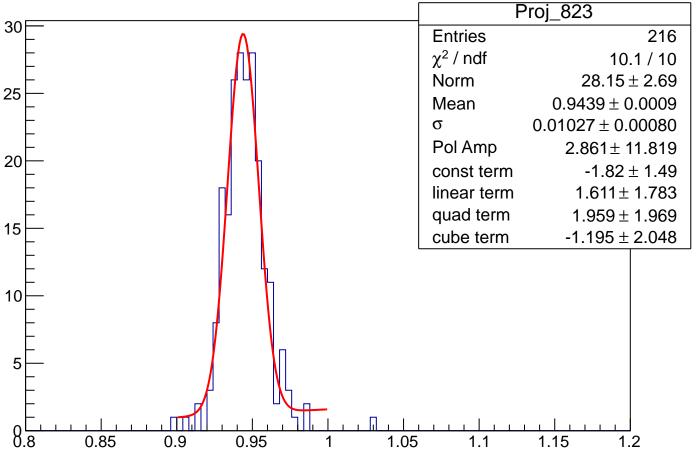


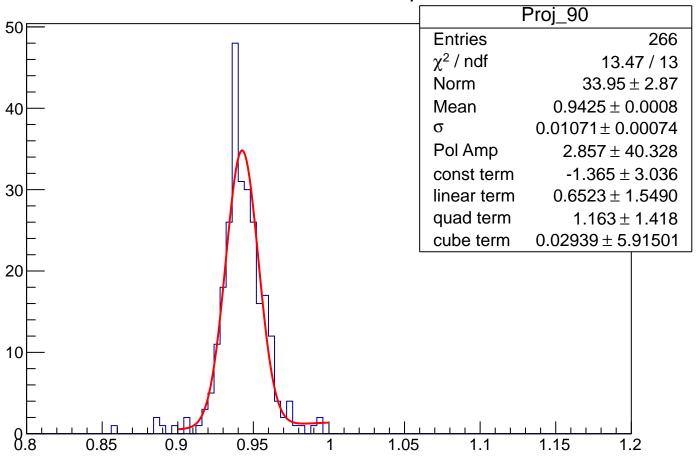


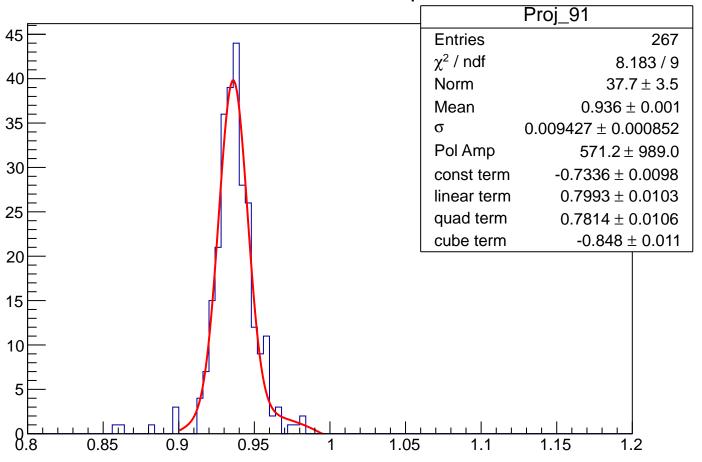




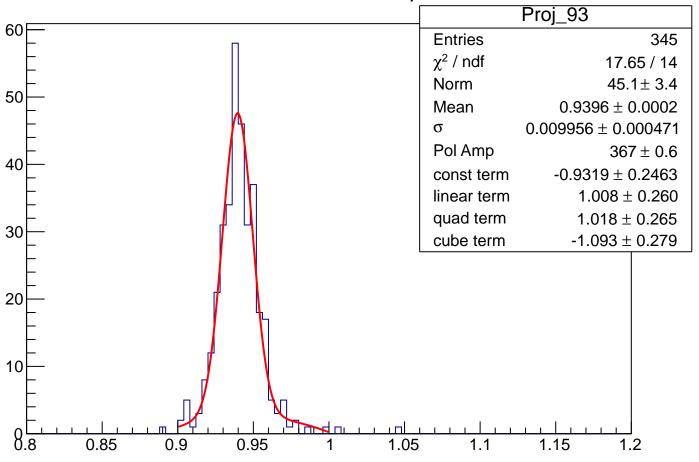


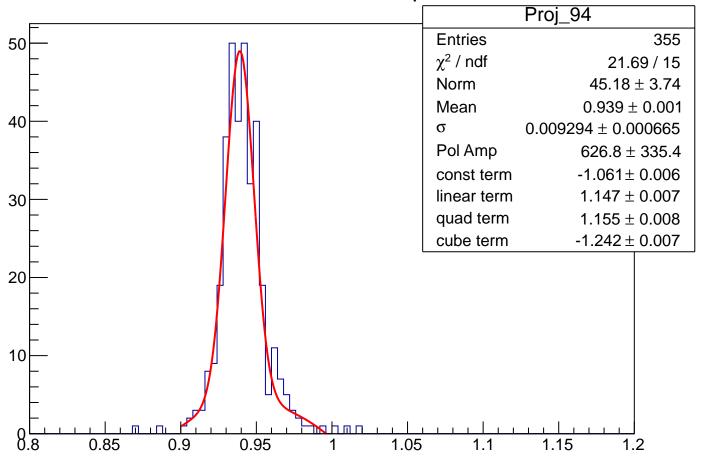


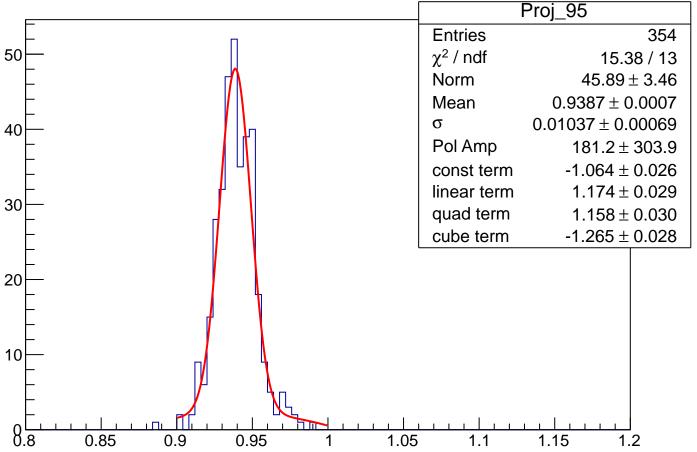


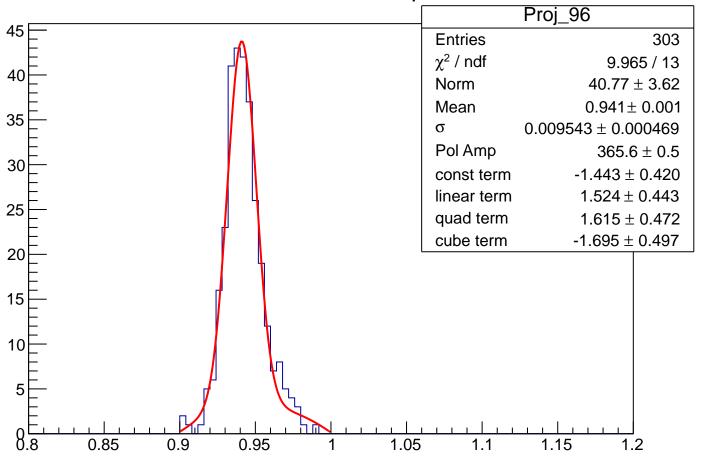


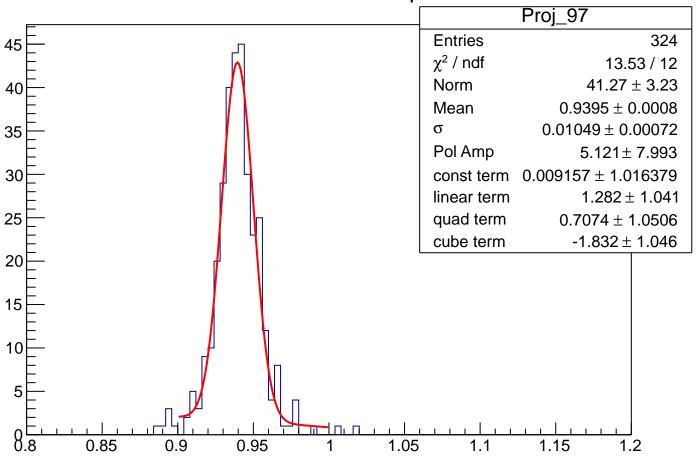
PhiThetaMassPip Proj\_92 45 **Entries** 288  $\chi^2$  / ndf 13.87 / 12 40 Norm  $35.84 \pm 3.07$  $0.9412 \pm 0.0008$ Mean 35 σ  $0.0105 \pm 0.0008$ Pol Amp  $3.396 \pm 3.208$ 30 const term  $0.8195 \pm 1.5979$  $1.875 \pm 1.651$ linear term 25 quad term  $0.6445 \pm 1.6847$  $-3.12 \pm 1.70$ cube term 20 15 10 5 0.8 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

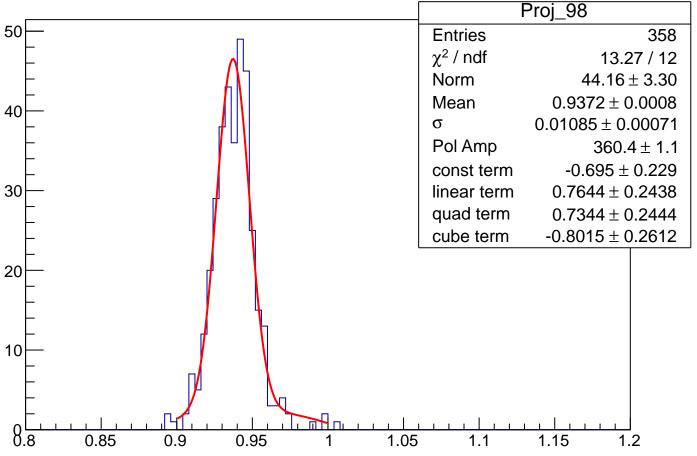


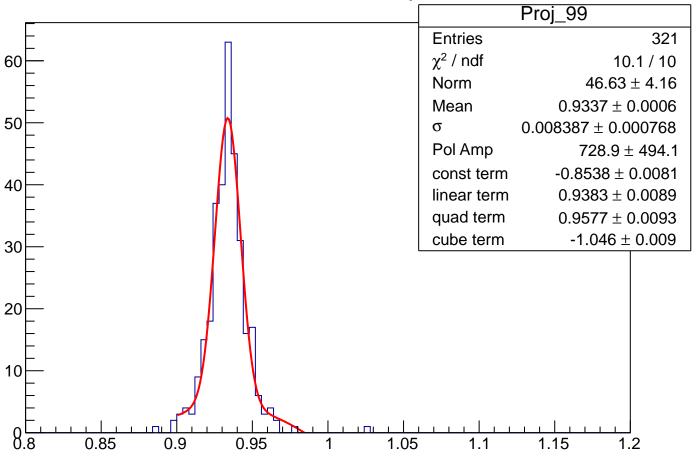


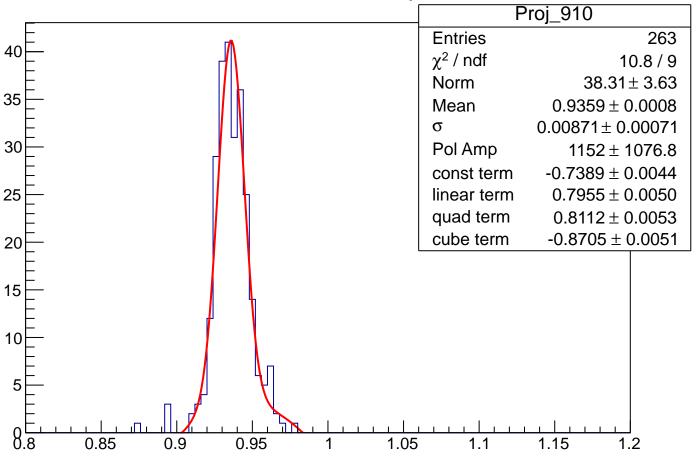












PhiThetaMassPip Proj\_911 **Entries** 248  $\chi^2$  / ndf 10.87 / 10 40 Norm  $32.3 \pm 3.5$ Mean  $0.9399 \pm 0.0008$ 35 σ  $0.00922 \pm 0.00078$ Pol Amp  $361 \pm 1.2$ 30 const term  $-1.296 \pm 0.414$ linear term  $1.443 \pm 0.443$ 25 quad term  $1.422 \pm 0.443$ cube term  $-1.575 \pm 0.475$ 20 15 10 5 8.8

1.05

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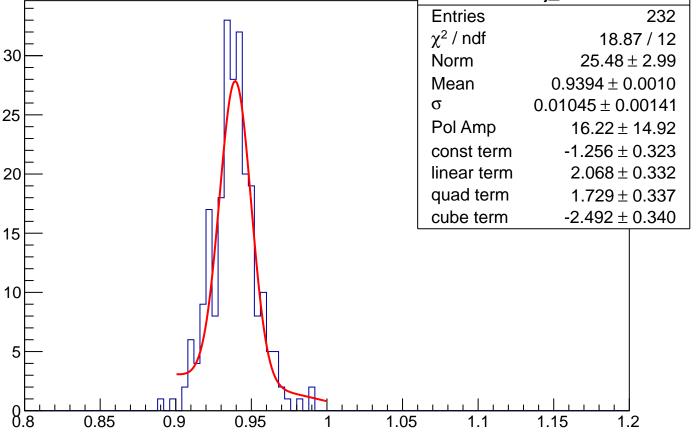
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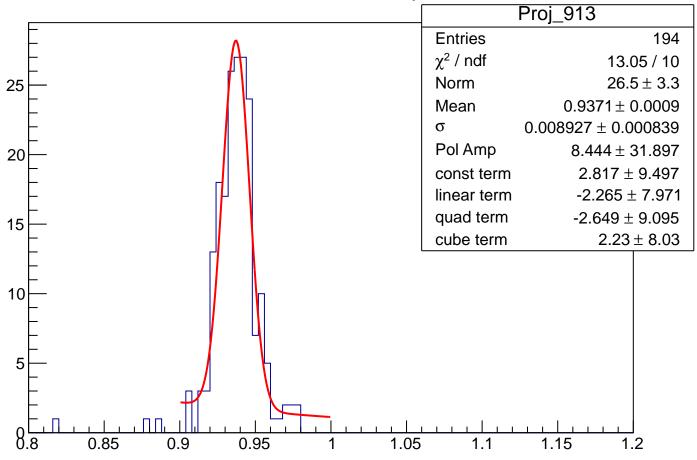
0.85

0.9

0.95

PhiThetaMassPip Proj\_912 **Entries** 232  $\chi^2$  / ndf 18.87 / 12 Norm  $25.48 \pm 2.99$ Mean  $0.9394 \pm 0.0010$ σ  $0.01045 \pm 0.00141$ Pol Amp  $16.22 \pm 14.92$ const term  $-1.256 \pm 0.323$ linear term  $2.068 \pm 0.332$ quad term  $1.729 \pm 0.337$ cube term  $-2.492 \pm 0.340$ 





PhiThetaMassPip Proj\_914 **Entries** 227  $\chi^2$  / ndf 6.595 / 1230 Norm  $30.78 \pm 2.79$ Mean  $0.9382 \pm 0.0008$ 25 σ  $0.01029 \pm 0.00080$ Pol Amp  $2.574 \pm 87.043$ const term  $-0.1599 \pm 6.4255$ 20 linear term  $1.151 \pm 1.367$ quad term  $0.7707 \pm 1.8256$ cube term  $-1.406 \pm 2.875$ 15 10 5 8.8

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PhiThetaMassPip Proj\_915 **Entries** 282  $\chi^2$  / ndf 10.64 / 14 35 Norm  $36.42 \pm 2.90$ Mean  $0.9401 \pm 0.0008$ 30 σ  $0.01071 \pm 0.00069$ Pol Amp  $2.458 \pm 5.934$ 25 const term  $0.4208 \pm 1.6747$ linear term  $0.8524 \pm 1.7068$ quad term  $0.3022 \pm 1.7012$ 20  $-1.262 \pm 1.669$ cube term 15 10 5

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1.05

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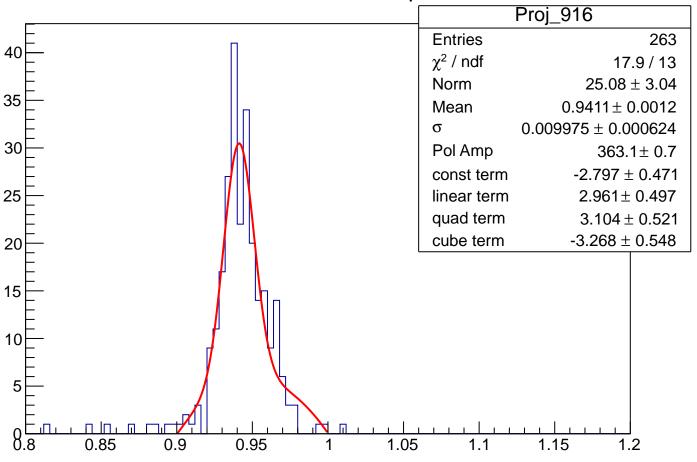
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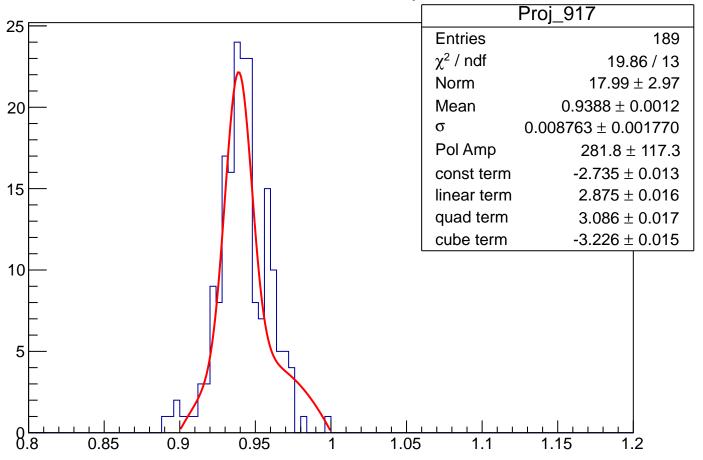
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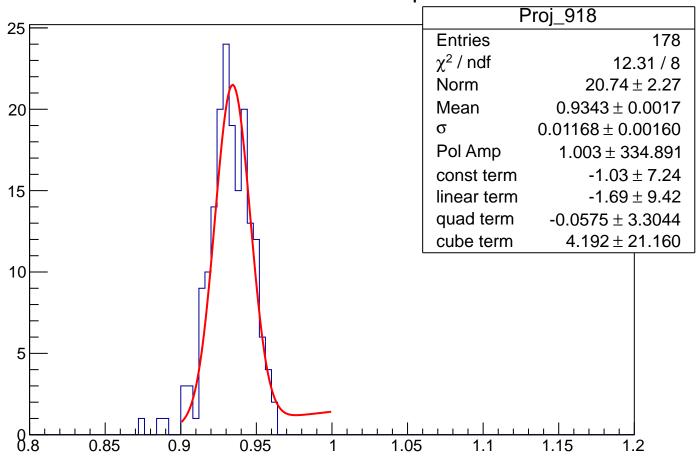
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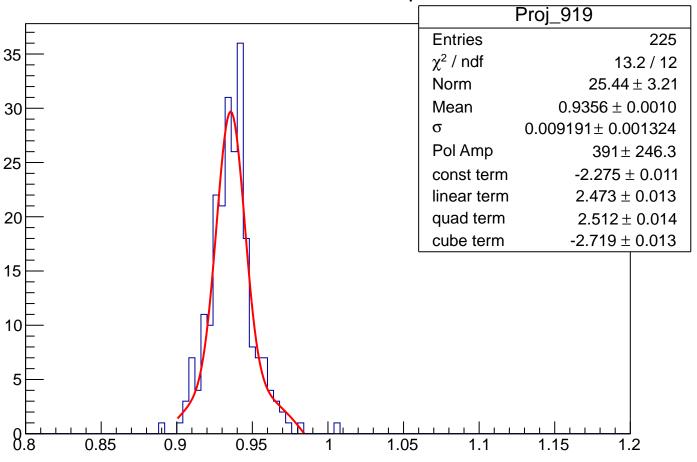
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PhiThetaMassPip Proj\_920 **Entries** 287  $\chi^2$  / ndf 22.54 / 12 40 Norm  $32.31 \pm 2.80$ Mean  $0.9357 \pm 0.0009$ 35  $0.01118 \pm 0.00080$ σ Pol Amp  $359.7 \pm 1.5$ 30 const term  $-1.001 \pm 0.341$ linear term  $1.09 \pm 0.37$ 25 quad term  $1.079 \pm 0.374$ cube term  $-1.168 \pm 0.404$ 20 15 10 5

1.05

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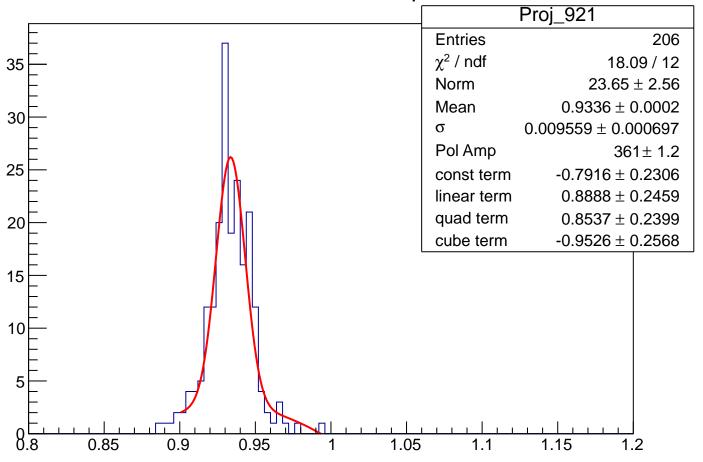
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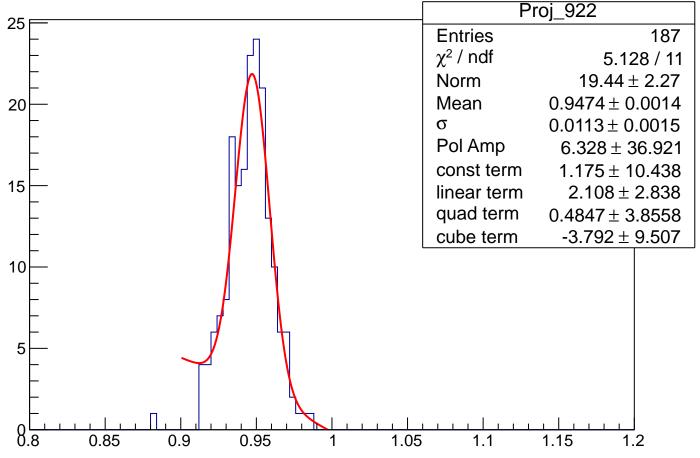
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0.95





PhiThetaMassPip Proj\_923 25 **Entries** 195  $\chi^2$  / ndf 15.01 / 13 Norm  $20.32 \pm 2.04$ Mean  $0.9447 \pm 0.0011$ 20 σ  $0.01264 \pm 0.00107$ Pol Amp  $1.007 \pm 848.837$ const term  $-2.42 \pm 2.09$ 15  $2.48 \pm 2.46$ linear term quad term  $2.863 \pm 2.780$ cube term  $-1.901 \pm 3.043$ 10 5 8.8

1.05

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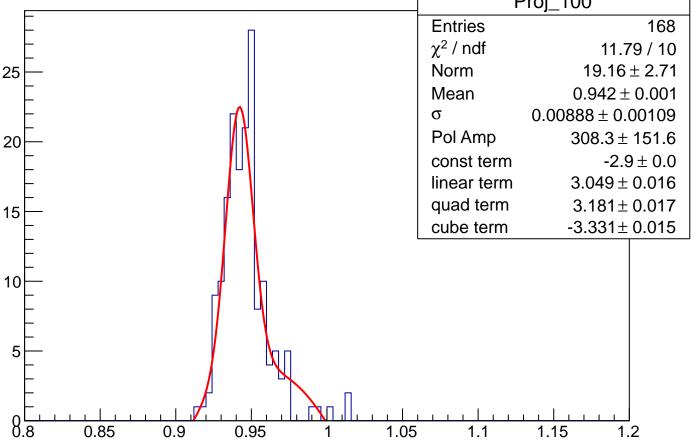
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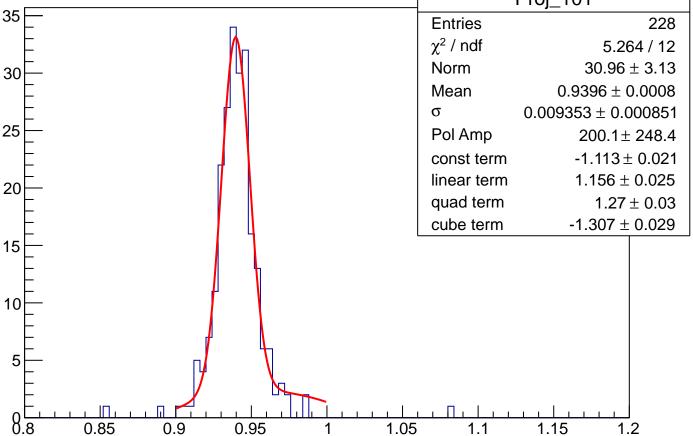
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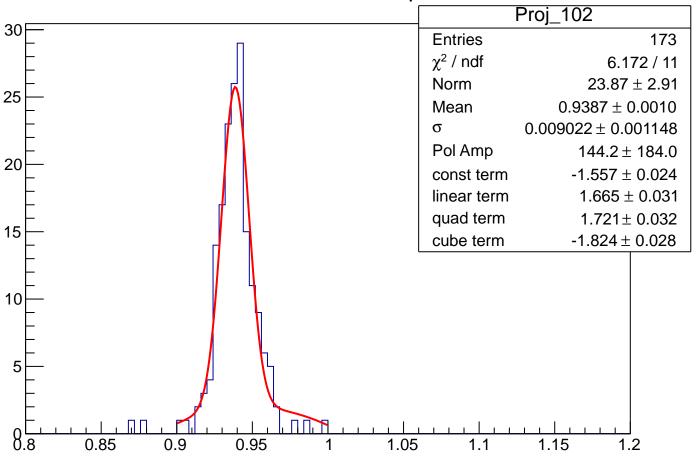
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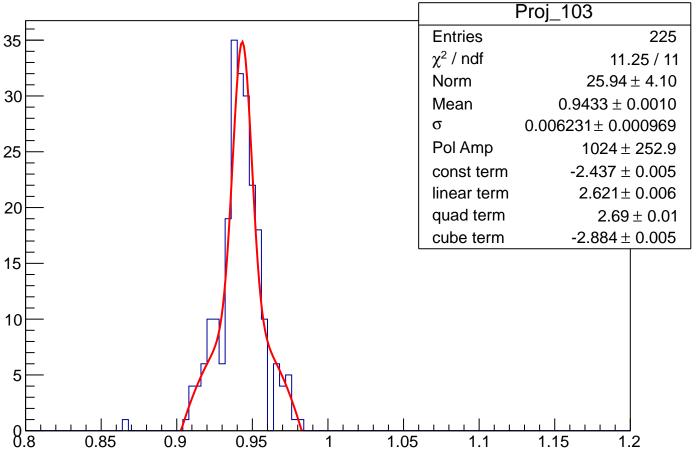
PhiThetaMassPip Proj\_100 **Entries** 168  $\chi^2$  / ndf 11.79 / 10 Norm  $19.16 \pm 2.71$ Mean  $0.942 \pm 0.001$ σ  $0.00888 \pm 0.00109$ Pol Amp  $308.3 \pm 151.6$ const term  $-2.9 \pm 0.0$ linear term  $3.049 \pm 0.016$ quad term  $3.181 \pm 0.017$ cube term  $-3.331 \pm 0.015$ 

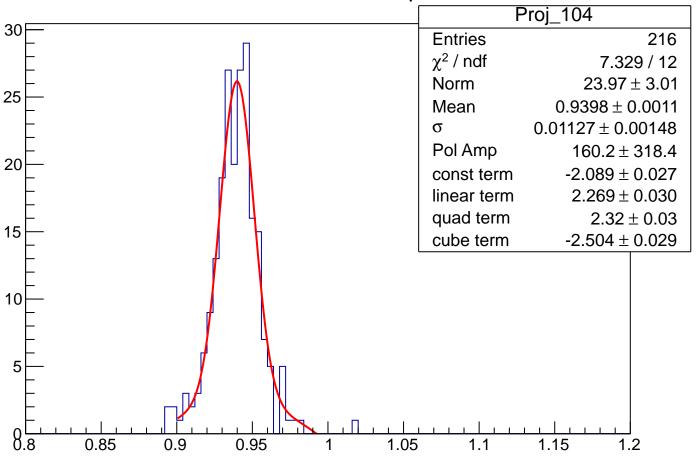


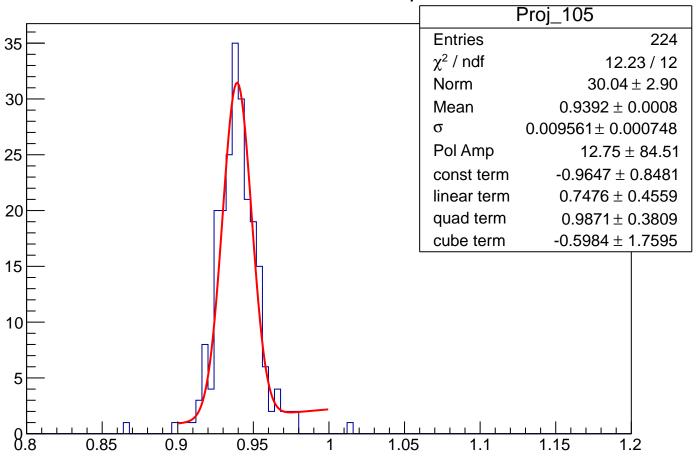
PhiThetaMassPip Proj\_101 **Entries**  $\chi^2$  / ndf Norm Mean σ Pol Amp const term linear term

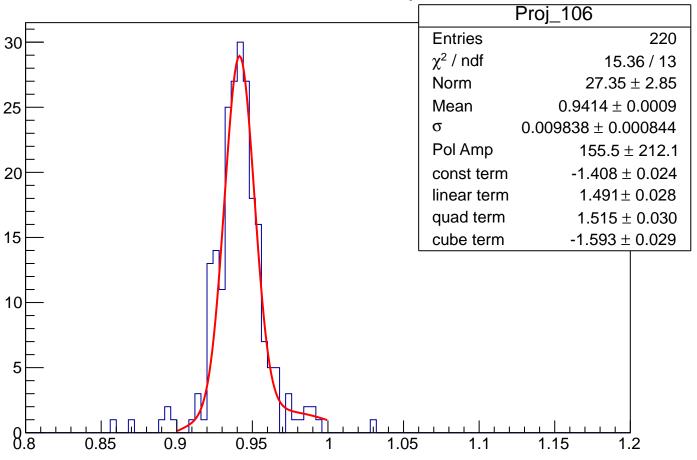


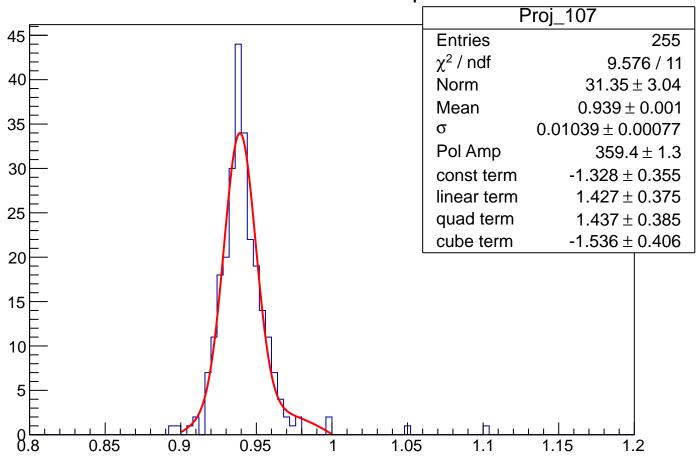


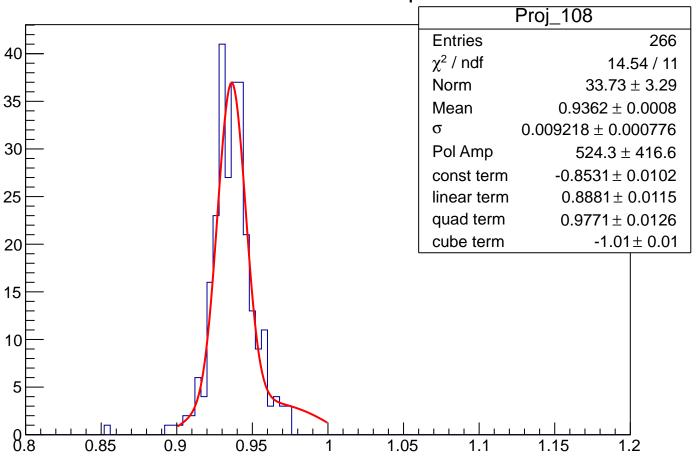


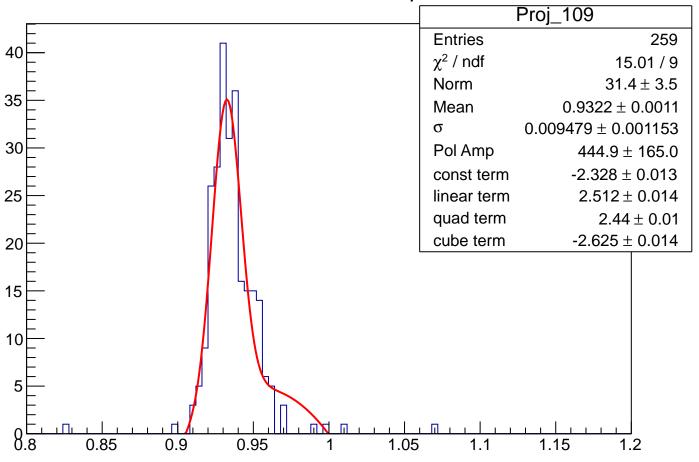


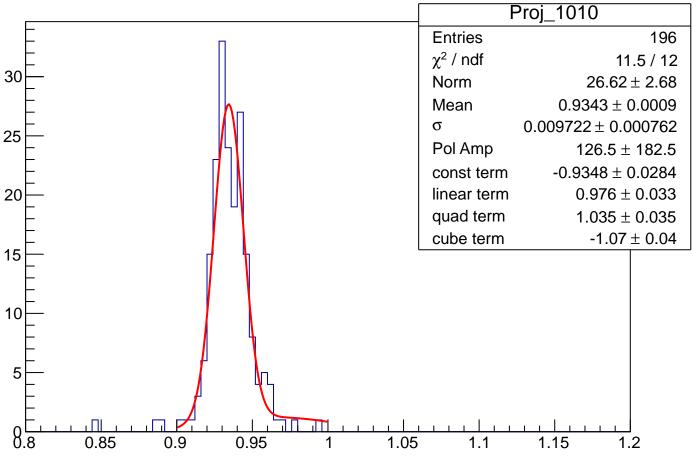












PhiThetaMassPip Proj\_1011 **Entries** 195 30  $\chi^2$  / ndf 8.834 / 11 Norm  $23.86 \pm 2.63$  $0.9386 \pm 0.0010$ Mean σ  $0.009984 \pm 0.001006$ Pol Amp  $37.95 \pm 59.25$ const term  $-1.643 \pm 0.133$ 20 linear term  $1.932 \pm 0.137$ quad term  $1.885 \pm 0.139$ cube term  $-2.156 \pm 0.138$ 15 10 5

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PhiThetaMassPip Proj\_1012 **Entries** 150 22  $\chi^2$  / ndf 7.94 / 820 Norm  $17.71 \pm 2.07$  $0.9386 \pm 0.0013$ Mean 18 σ  $0.0119 \pm 0.0014$ Pol Amp 16 8.111± 27.391 const term  $-2.939 \pm 0.585$ 14 linear term  $2.898 \pm 0.649$ quad term  $3.119 \pm 0.704$ 12 cube term  $-2.954 \pm 0.750$ 10 8 6 4 2

1.05

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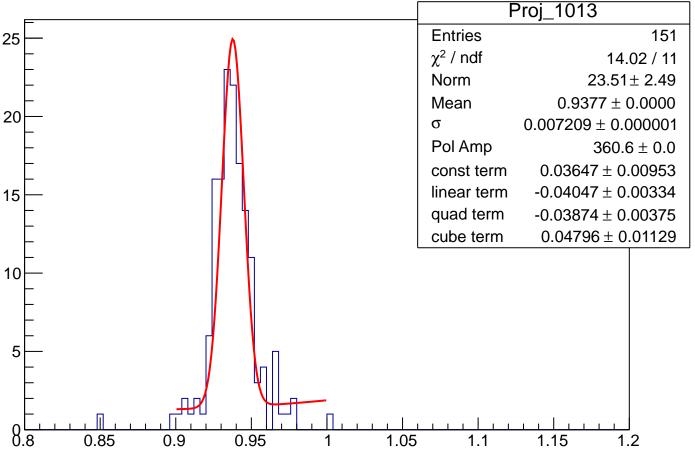
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PhiThetaMassPip Proj\_1014 **Entries** 160  $\chi^2$  / ndf 3.899 / 8 25 Norm  $21.92 \pm 2.61$  $0.9391 \pm 0.0011$ Mean σ  $0.009176 \pm 0.001034$ 20 Pol Amp  $9.141 \pm 90.512$ const term  $-2.313 \pm 2.496$ linear term  $1.853 \pm 1.038$ 15 quad term  $2.366 \pm 1.168$ cube term  $-1.587 \pm 4.282$ 10 5 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

PhiThetaMassPip Proj\_1015 24 **Entries** 164 22  $\chi^2$  / ndf 6.809 / 12Norm  $21.26 \pm 2.40$ 20 Mean  $0.9412 \pm 0.0011$ 18 σ  $0.01032 \pm 0.00106$ Pol Amp  $1743 \pm 3649.7$ 16 const term  $0.06526 \pm 0.00228$  $-0.0686 \pm 0.0024$ 14 linear term quad term  $-0.06958 \pm 0.00247$ 12 cube term  $0.07363 \pm 0.00236$ 10 8 6 4 2

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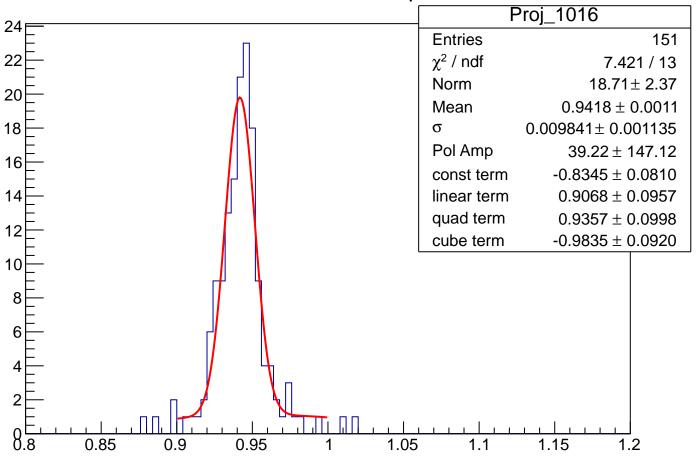
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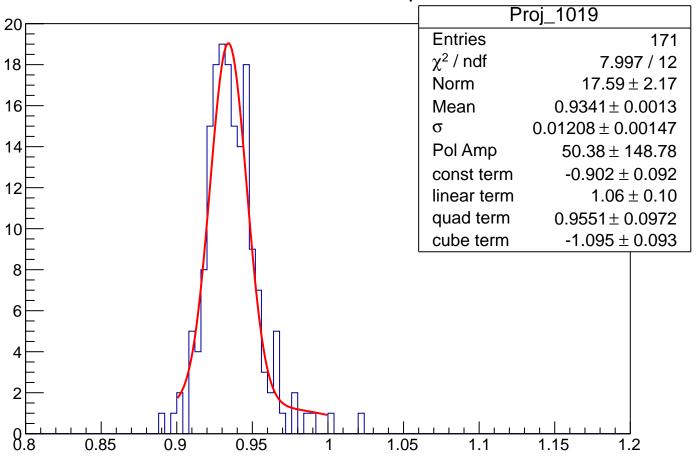
0.9

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PhiThetaMassPip Proj\_1017 **Entries** 133 22  $\chi^2$  / ndf 9.189 / 11 20 Norm  $17.59 \pm 2.55$  $0.9425 \pm 0.0013$ Mean 18 σ  $0.008013 \pm 0.001029$ 16 Pol Amp  $1618 \pm 795.9$ const term  $0.2251 \pm 0.0026$ 14 linear term  $-0.2294 \pm 0.0027$ quad term  $-0.2343 \pm 0.0027$ 12  $0.2393 \pm 0.0027$ cube term 10 8 6 4 2 0.8 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

PhiThetaMassPip Proj\_1018 **Entries** 113  $\chi^2$  / ndf 10.21 / 11 16 Norm  $13.79 \pm 2.77$  $0.9336 \pm 0.0004$ Mean 14 σ  $0.005283 \pm 0.000627$ Pol Amp  $357.6 \pm 1.2$ 12 const term  $-1.02 \pm 0.41$ linear term  $1.151 \pm 0.441$ 10 quad term  $1.112 \pm 0.435$ cube term  $-1.246 \pm 0.469$ 8 6 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2



PhiThetaMassPip Proj\_1020 **Entries** 158  $\chi^2$  / ndf 10.32 / 13 Norm  $15.87 \pm 2.22$ Mean  $0.9338 \pm 0.0004$ σ  $0.01131 \pm 0.00140$ Pol Amp  $353.9 \pm 2.7$ const term  $0.5484 \pm 0.7699$ linear term  $-0.5259 \pm 0.8279$ quad term  $-0.6532 \pm 0.8448$  $0.6342 \pm 0.9060$ cube term

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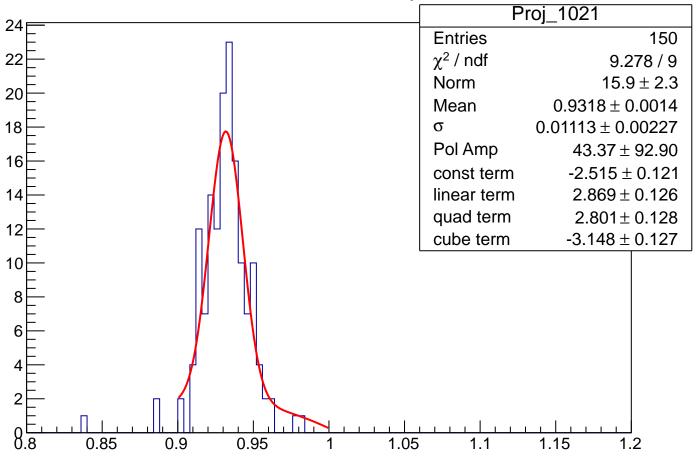
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PhiThetaMassPip Proj\_1022 Entries 129  $\chi^2$  / ndf 9.177 / 12 16 Norm  $12.91 \pm 1.79$ Mean  $0.9471 \pm 0.0015$ 14 σ  $0.01149 \pm 0.00137$ Pol Amp  $1 \pm 45.7$ 12 const term  $-4.256 \pm 1.276$ linear term  $1.098 \pm 0.536$ 10 quad term  $3.29 \pm 0.62$ cube term  $1.803 \pm 2.235$ 8 6 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

PhiThetaMassPip Proj\_1023 22 **Entries** 156  $\chi^2$  / ndf 8.526 / 15 20 Norm  $16.54 \pm 2.01$ 18  $0.9476 \pm 0.0012$ Mean σ  $0.01138 \pm 0.00126$ 16 Pol Amp  $2.292 \pm 5.235$ 14 const term  $0.2686 \pm 3.4728$ linear term  $1.961 \pm 0.995$ 12 quad term  $0.96 \pm 1.05$ cube term  $-2.836 \pm 2.621$ 10 8 6 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

PhiThetaMassPip Proj\_110 **Entries** 119  $\chi^2$  / ndf 11.2 / 11 16 Norm  $14.07 \pm 2.21$  $0.9413 \pm 0.0013$ Mean 14 σ  $0.009091 \pm 0.001430$ Pol Amp  $89.53 \pm 185.77$ 12 const term  $-1.485 \pm 0.040$ linear term  $1.578 \pm 0.048$ 10 quad term  $1.636 \pm 0.051$  $-1.718 \pm 0.049$ cube term 8 6 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

PhiThetaMassPip Proj\_111 **Entries** 123 18  $\chi^2$  / ndf 10.03 / 8 Norm  $17.51 \pm 2.63$ 16 Mean  $0.9411 \pm 0.0011$ σ  $0.00904 \pm 0.00129$ 14 Pol Amp  $2882 \pm 2847.0$ 12 const term  $0.2821 \pm 0.0017$  $-0.3028 \pm 0.0019$ linear term 10 quad term  $-0.3187 \pm 0.0021$  $0.3421 \pm 0.0022$ cube term 8 6 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

PhiThetaMassPip Proj\_112 **Entries** 96  $\chi^2$  / ndf 6.301 / 6 18 Norm  $12.06 \pm 1.98$ 16 Mean  $0.9419 \pm 0.0015$ σ  $-0.0101 \pm 0.0017$ 14 Pol Amp  $64.37 \pm 310.48$ const term  $0.05405 \pm 0.08050$ 12  $-0.02773 \pm 0.08579$ linear term quad term  $-0.03858 \pm 0.08681$ 10  $0.02709 \pm 0.08187$ cube term 8 6 4 2

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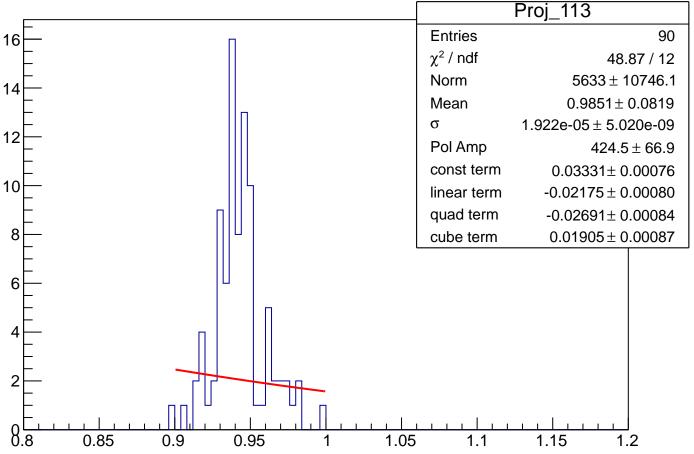
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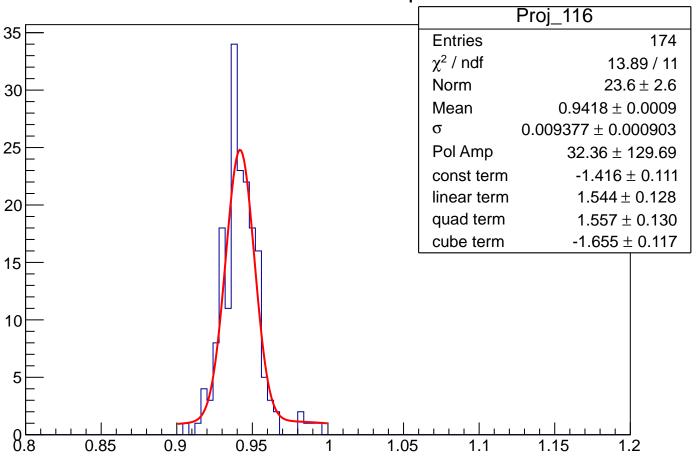
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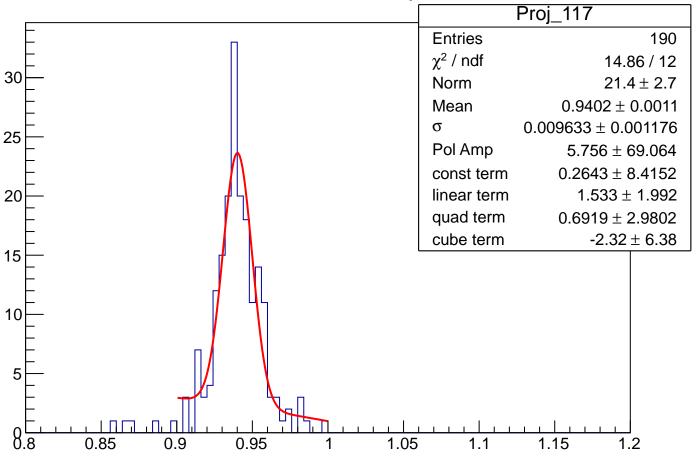
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PhiThetaMassPip Proj\_114 **Entries** 91  $\chi^2$  / ndf 16 8.612/9 Norm  $14.37 \pm 2.61$ Mean  $0.9422 \pm 0.0000$ 14 σ  $0.004722 \pm 0.000007$ Pol Amp  $454 \pm 0.1$ 12 const term  $0.03821 \pm 0.01030$ linear term  $-0.01438 \pm 0.00359$ 10 quad term  $-0.0259 \pm 0.0038$  $0.004455 \pm 0.011439$ cube term 8 6 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

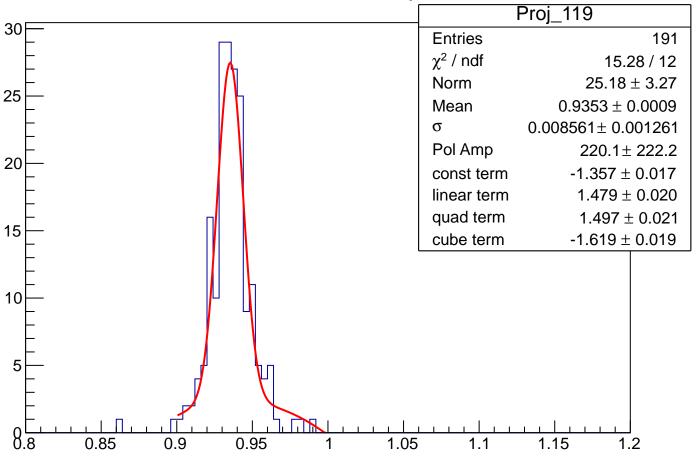
PhiThetaMassPip Proj\_115 **Entries** 94  $\chi^2$  / ndf 13.5 / 9 12 Norm  $11.69 \pm 2.10$ Mean  $0.9439 \pm 0.0000$ σ  $0.00677 \pm 0.00000$ 10 Pol Amp  $348.4 \pm 0.0$ const term  $0.03325 \pm 0.01373$ 8 linear term  $-0.01299 \pm 0.00474$ quad term  $-0.02248 \pm 0.00508$  $0.005154 \pm 0.015364$ cube term 6 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2



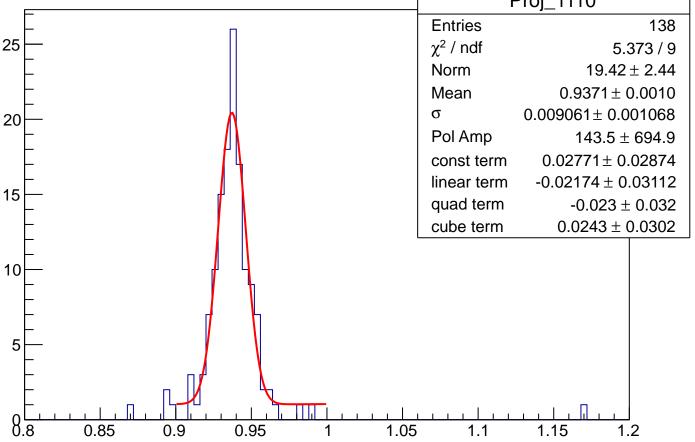


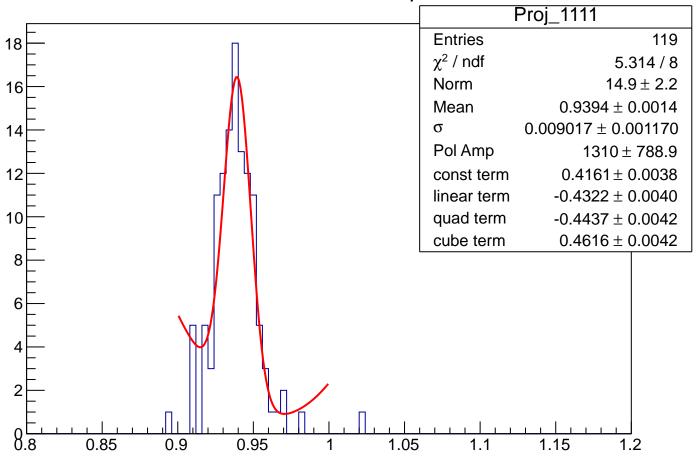
PhiThetaMassPip Proj\_118 **Entries** 202  $\chi^2$  / ndf 9.551 / 11 30 Norm  $26.2 \pm 2.7$ Mean  $0.9383 \pm 0.0009$ σ  $0.009894 \pm 0.000963$ 25 Pol Amp  $1.109 \pm 40.978$ const term  $0.3304 \pm 5.0530$ 20 linear term  $0.9546 \pm 0.0594$ quad term  $0.6433 \pm 1.3520$ cube term  $-0.612 \pm 1.534$ 15 10 5 8.8 0.85 0.9 0.95 1.05 1.15

1.2



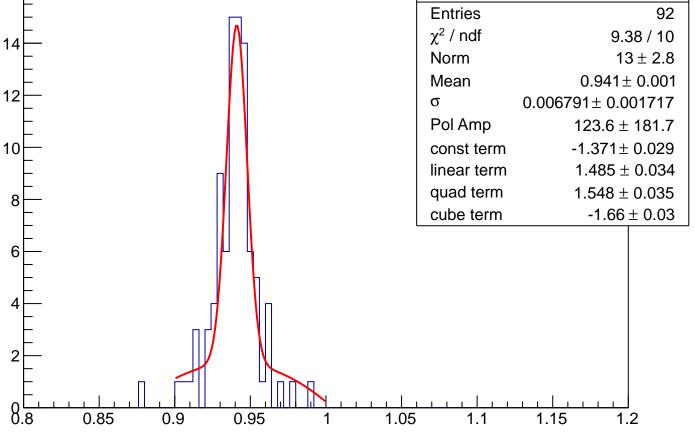
PhiThetaMassPip Proj\_1110 **Entries** 138  $\chi^2$  / ndf 5.373 / 9 Norm  $19.42 \pm 2.44$ Mean  $0.9371 \pm 0.0010$ σ  $0.009061 \pm 0.001068$ Pol Amp  $143.5 \pm 694.9$  $0.02771 \pm 0.02874$ const term linear term  $-0.02174 \pm 0.03112$ quad term  $-0.023 \pm 0.032$  $0.0243 \pm 0.0302$ cube term

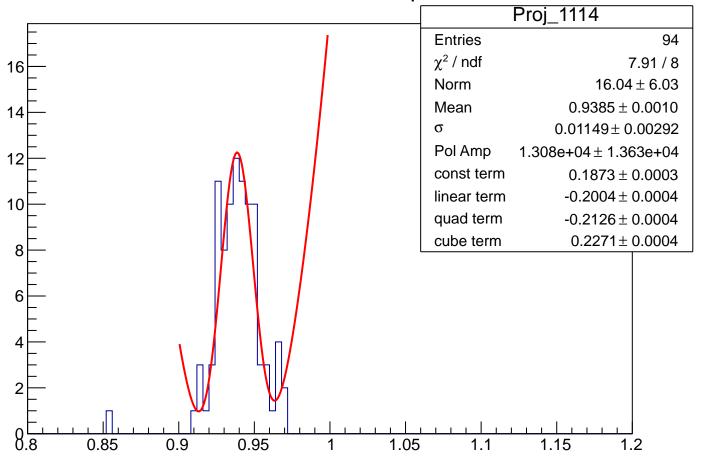


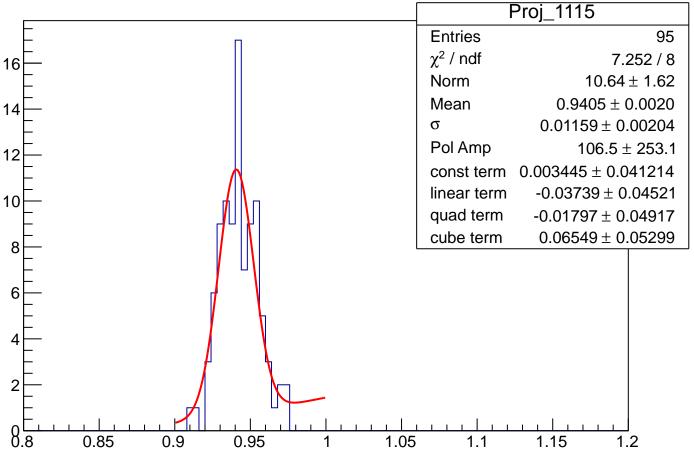


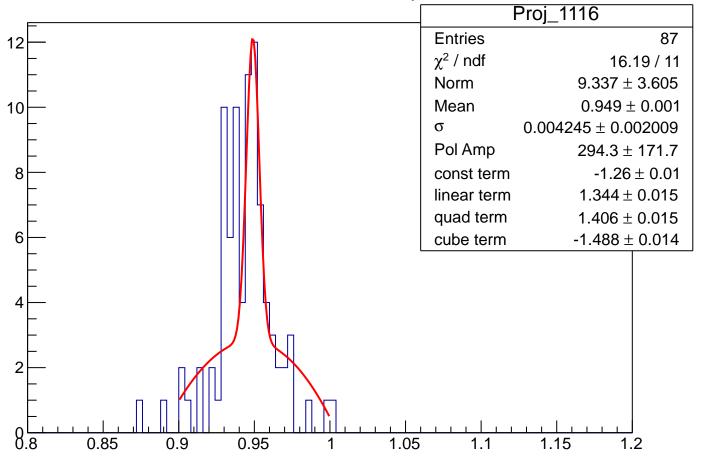
PhiThetaMassPip Proj\_1112 **Entries** 105  $\chi^2$  / ndf 11.43 / 10 14 Norm  $11.32 \pm 1.74$ Mean  $0.9386 \pm 0.0017$ 12 σ  $0.01089 \pm 0.00170$ Pol Amp  $138.7 \pm 344.8$ 10 const term  $0.02496 \pm 0.02664$  $-0.04318 \pm 0.03012$ linear term quad term  $-0.03311 \pm 0.03331$ 8  $0.06147 \pm 0.03615$ cube term 6 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

PhiThetaMassPip Proj\_1113 **Entries** 92  $\chi^2$  / ndf 9.38 / 10 Norm  $13 \pm 2.8$  $0.941 \pm 0.001$ Mean σ  $0.006791 \pm 0.001717$ Pol Amp  $123.6 \pm 181.7$ const term  $-1.371 \pm 0.029$ linear term  $1.485 \pm 0.034$ quad term  $1.548 \pm 0.035$  $-1.66 \pm 0.03$ cube term

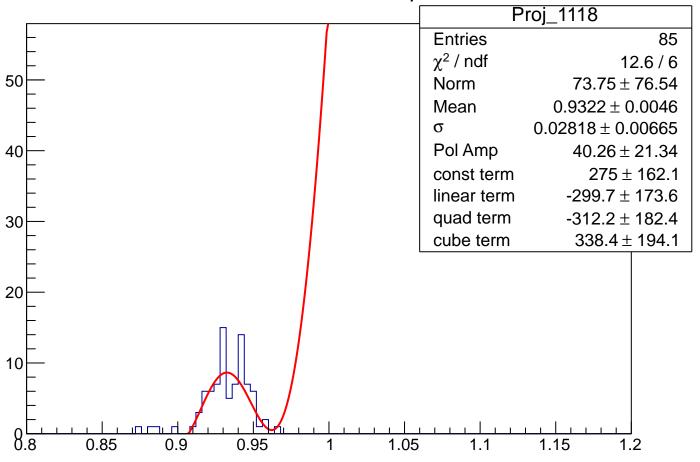


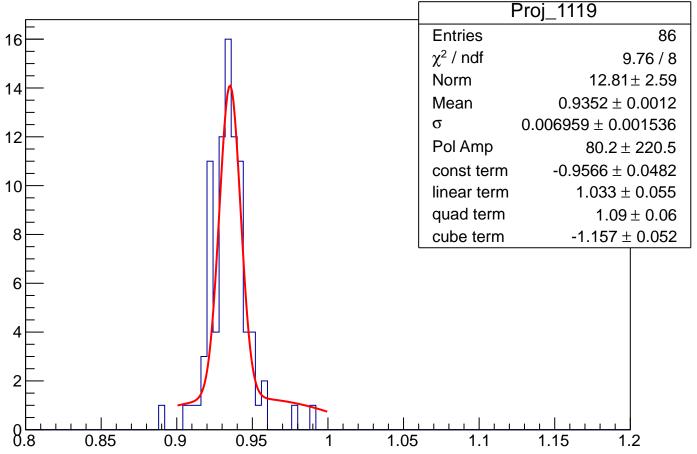






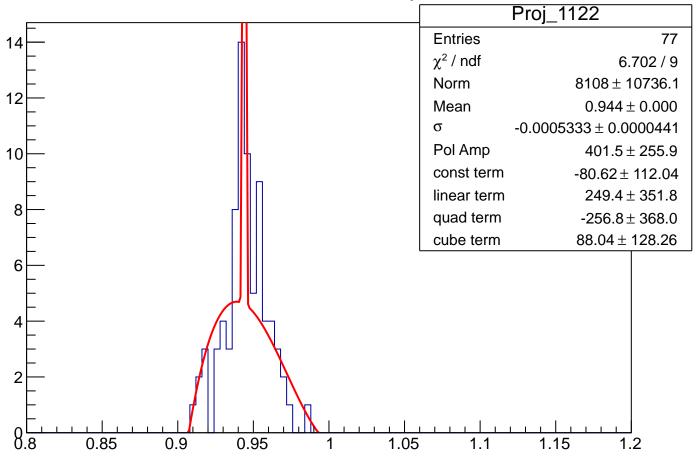
PhiThetaMassPip Proj\_1117 **Entries** 80 12  $\chi^2$  / ndf 6.442 / 10Norm  $10.59 \pm 2.22$  $0.9447 \pm 0.0016$ Mean 10 σ  $0.007112 \pm 0.001315$ Pol Amp  $16.15 \pm 59.01$ 8 const term  $-0.15 \pm 0.91$ linear term  $0.2018 \pm 1.1084$ quad term  $0.2145 \pm 1.1784$ 6 cube term  $-0.1914 \pm 1.1044$ 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2





PhiThetaMassPip Proj\_1120 **Entries** 98 14  $\chi^2$  / ndf 8.591/8 Norm  $13.23 \pm 2.02$  $0.9315 \pm 0.0000$ Mean 12 σ  $0.007316 \pm 0.000001$ Pol Amp  $438 \pm 0.1$ 10 const term  $0.03457 \pm 0.01141$ linear term  $-0.04156 \pm 0.00418$ 8 quad term  $-0.03913 \pm 0.00445$  $0.05144 \pm 0.01411$ cube term 6 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2

PhiThetaMassPip Proj\_1121 **Entries** 83 10  $\chi^2$  / ndf 8.36 / 10 Norm  $2035 \pm 8368.5$  $0.932 \pm 0.000$ Mean 8 σ  $0.000576 \pm 0.000200$ Pol Amp  $144.2 \pm 47.5$ const term  $-486.9 \pm 0.0$ linear term  $1539 \pm 0.0$ 6 quad term  $-1620 \pm 0.0$ cube term  $568.3 \pm 0.0$ 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15



PhiThetaMassPip Proj\_1123 **Entries** 82  $\chi^2$  / ndf 6.749 / 1014 Norm  $8.229 \pm 1.413$ Mean  $0.9438 \pm 0.0024$ 12 σ  $0.01268 \pm 0.00249$ Pol Amp  $1.752 \pm 95.703$ 10 const term  $-2.139 \pm 1.065$ linear term  $2.279 \pm 0.501$ quad term  $2.37 \pm 2.13$ 8 cube term  $-1.941 \pm 3.798$ 6 4 2 8.8 0.85 0.9 0.95 1.05 1.1 1.15 1.2