A simultaneous analysis of $B \to D\ell\nu$ and $B \to D^*\ell\nu$ decays

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TS Analysis Meeting
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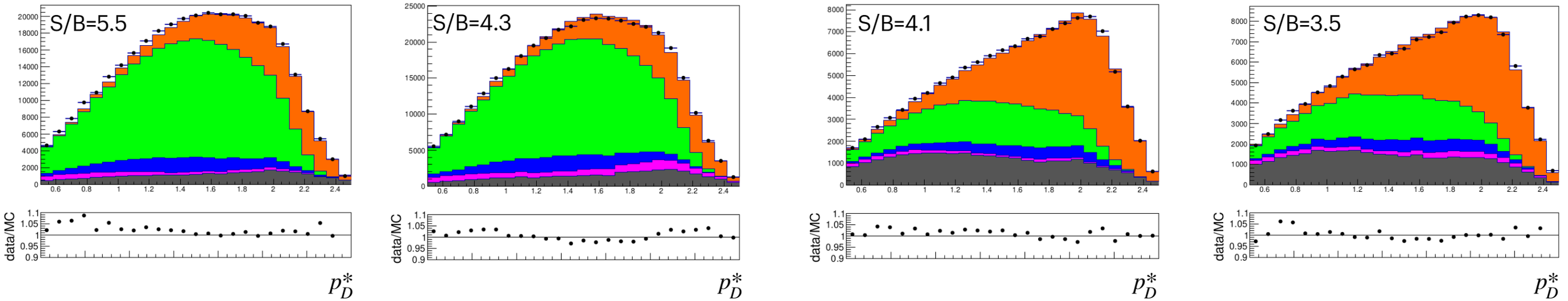
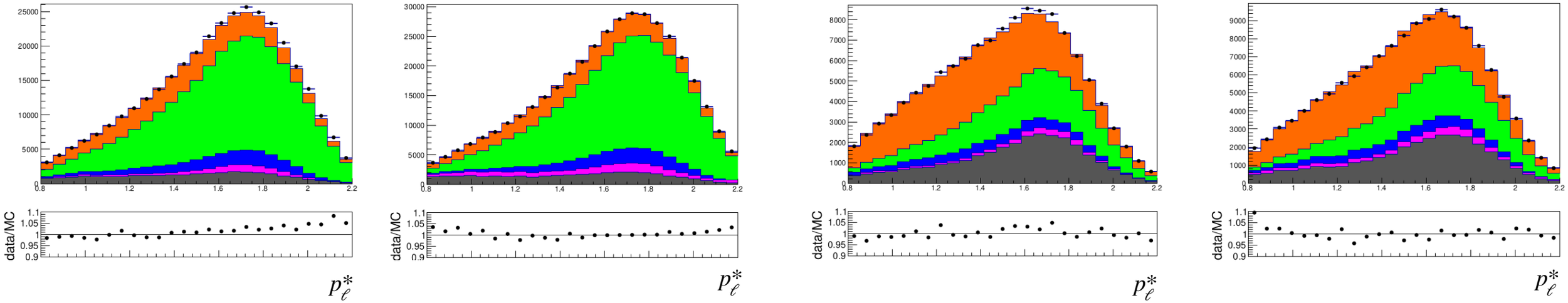
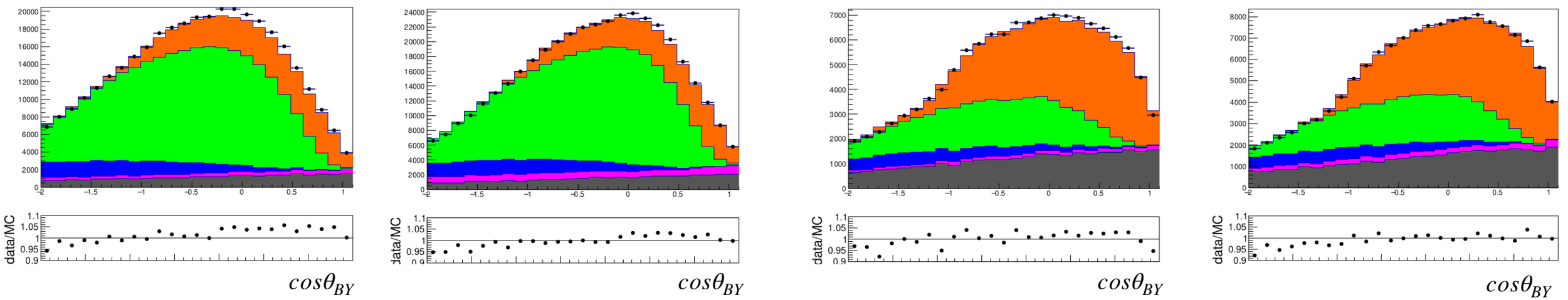
Data/MC agreement: signal region

$B \to D^0 e\nu$ | $B \to D^0 \mu\nu$ | $B \to D^- e\nu$ | $B \to D^- \mu\nu$







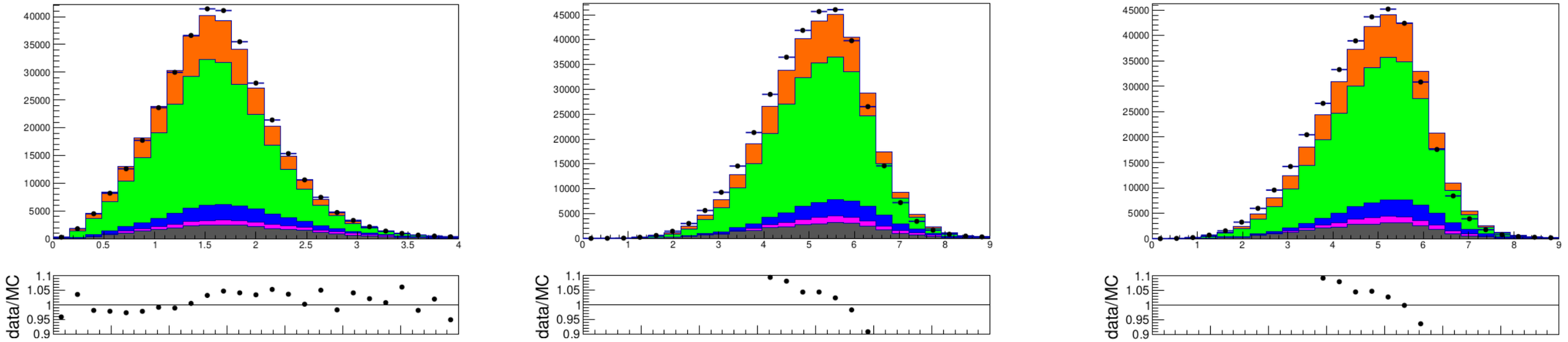
Data/MC agreement
ROE variables

Focus on $B \to D^0 e\nu$

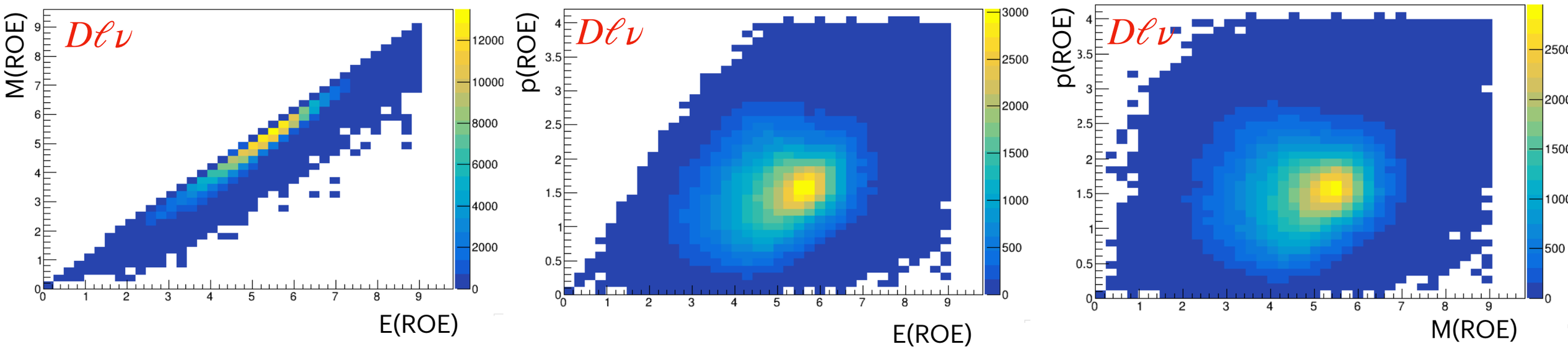
ROE variables

Could the ROE variables explain the data/MC disagreement?

$B \to D^0 e\nu$ $B \to D^0 e\nu$ $B \to D^0 e\nu$



p(ROE) E(ROE) M(ROE)



Reweight the ROE variables to see if data/MC agreement looks better.

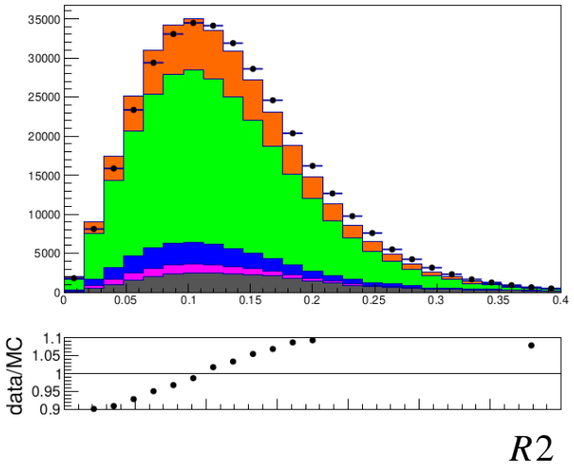
Data/MC agreement

Reweight ROE variables

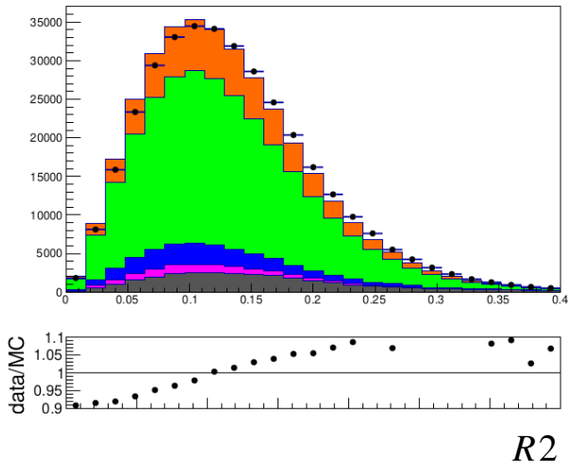
Focus on $B \to D^0 e\nu$

Reweight ROE(M) variable: signal region

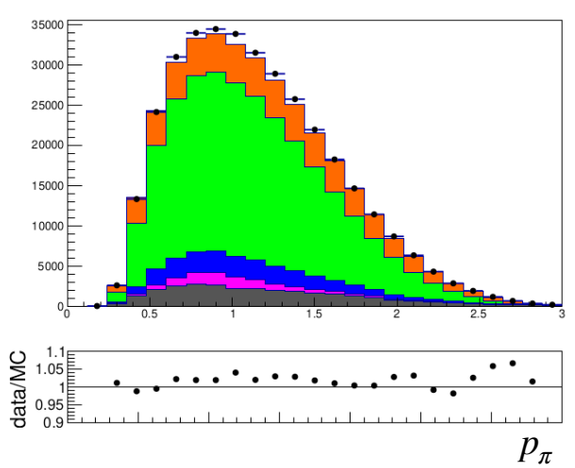
Starting point



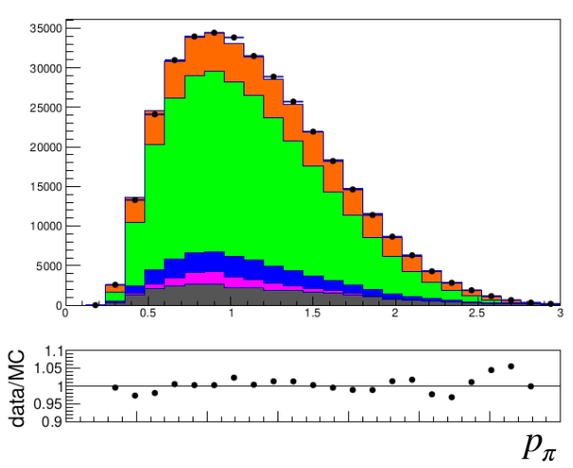
ROE(M) reweighting

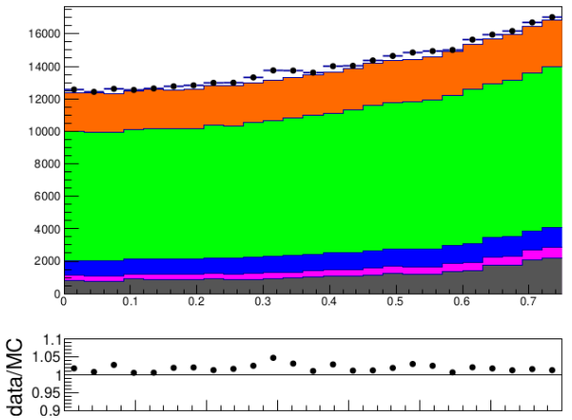


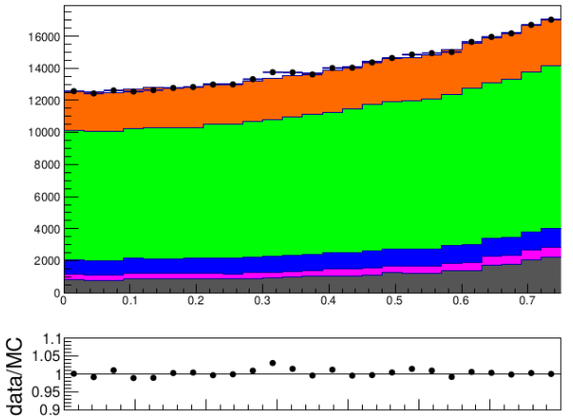
Starting point

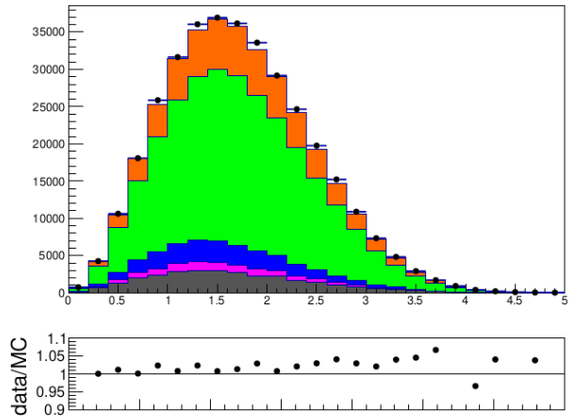


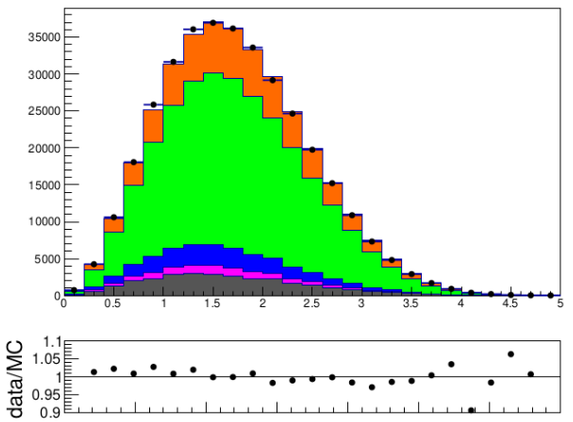
ROE(M) reweighting

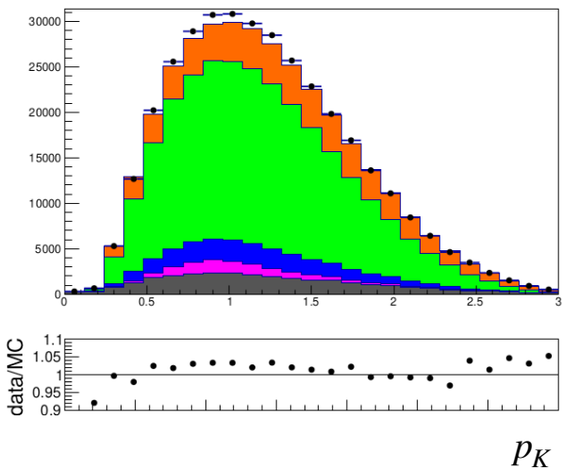


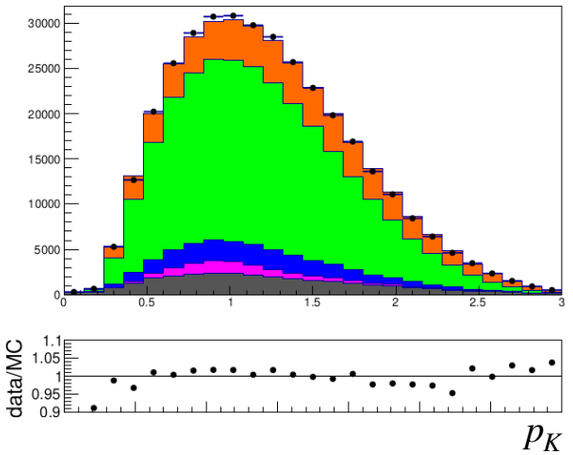


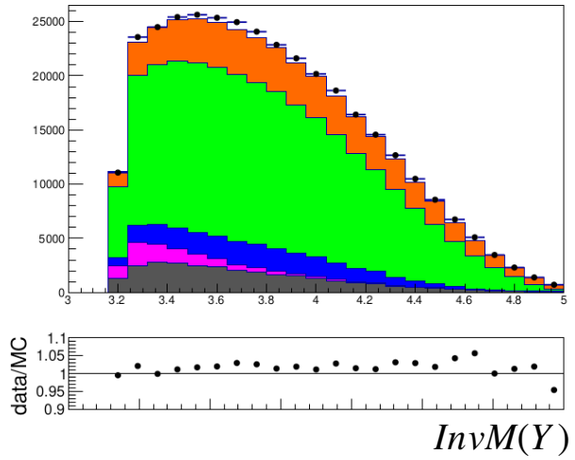


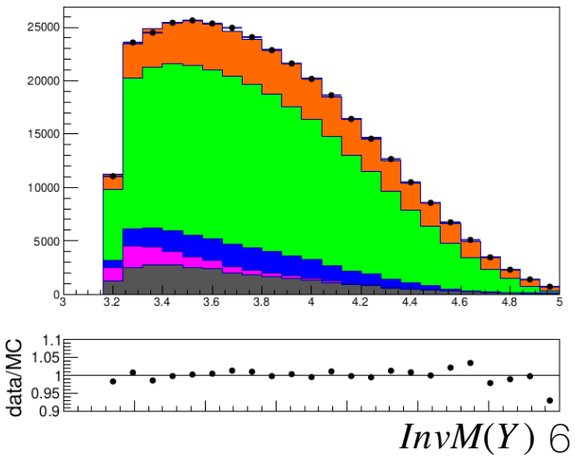






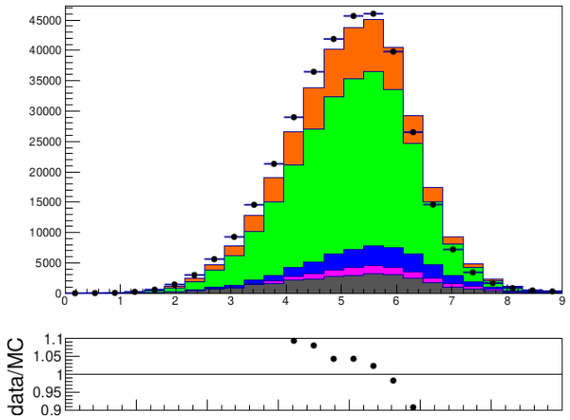






Reweight ROE(M) variable: signal region

Starting point

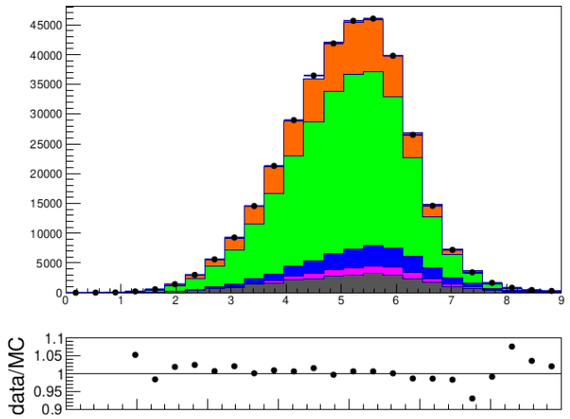


E_{ROE}

p_{ROE}

M_{ROE}

ROE(M) reweighting

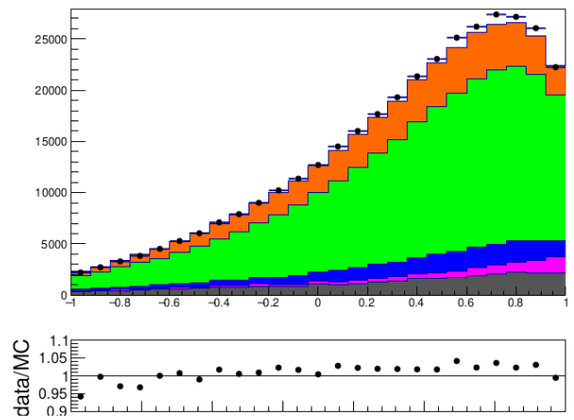


E_{ROE}

p_{ROE}

M_{ROE}

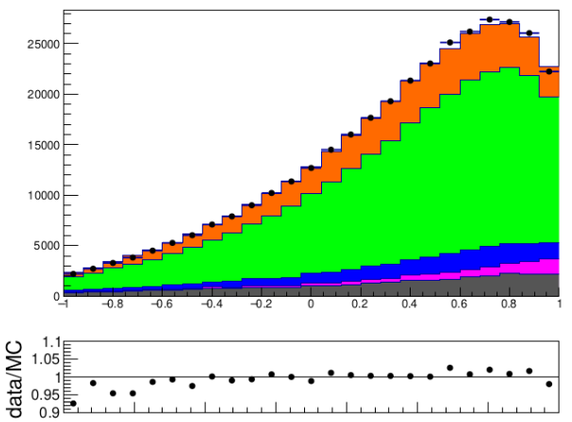
Starting point



$cos\theta_D$

$cos\theta_\ell$

ROE(M) reweighting

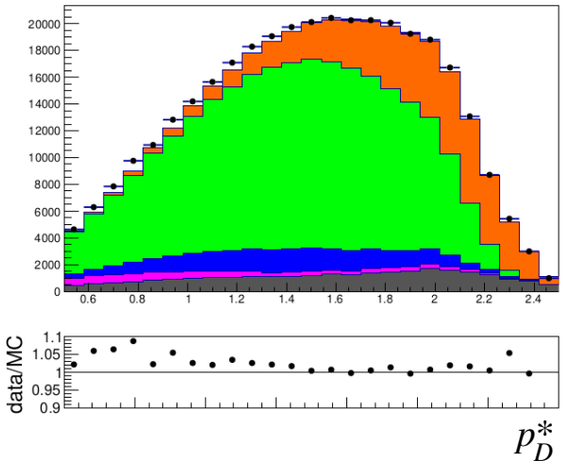


$cos\theta_D$

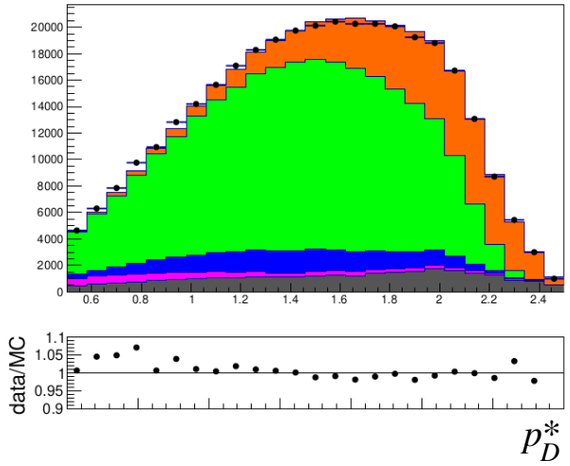
$cos\theta_\ell$

Reweight ROE variables: signal region

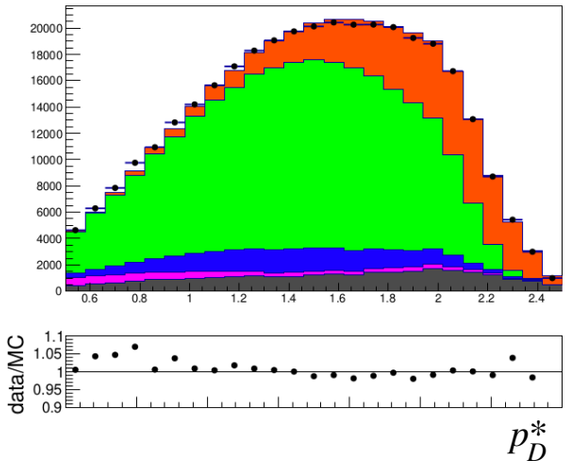
Starting point



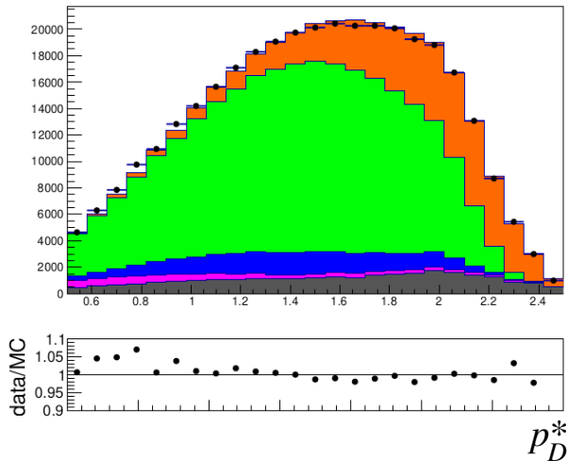
ROE(M) reweighting

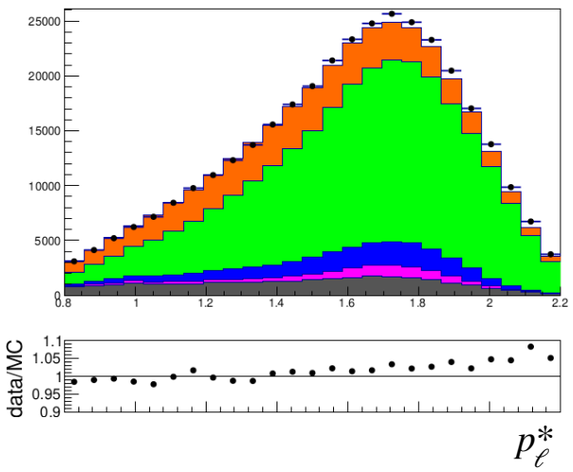


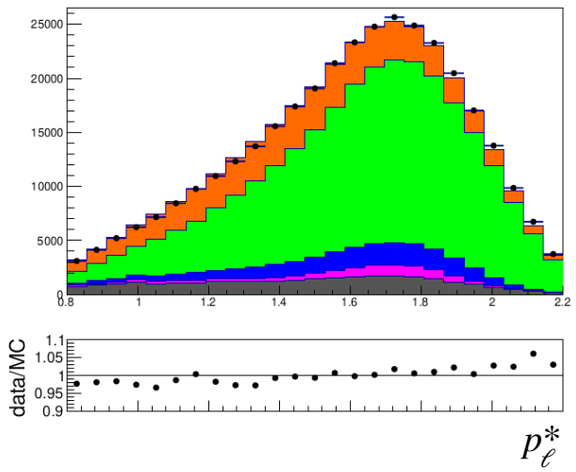
ROE(P) reweighting

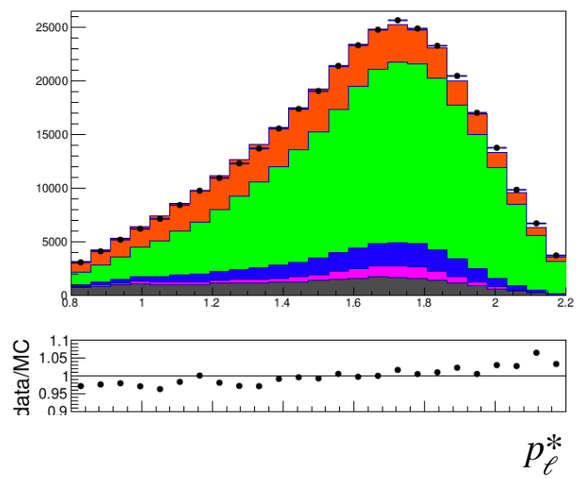


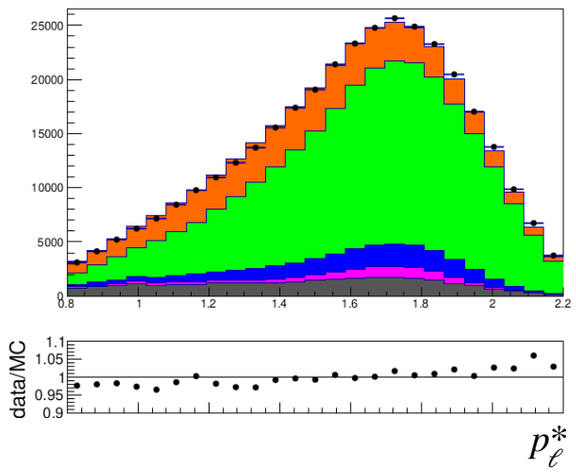
ROE(E) reweighting

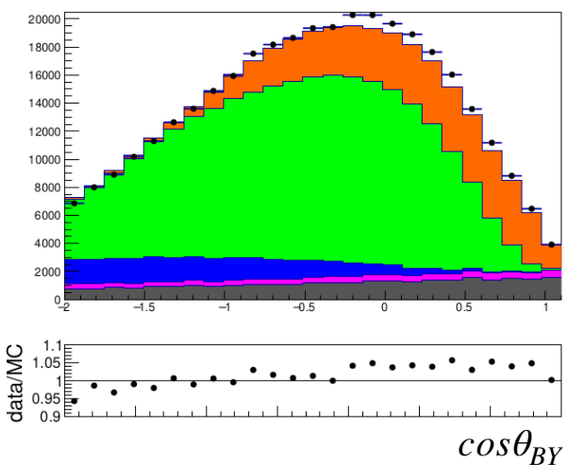


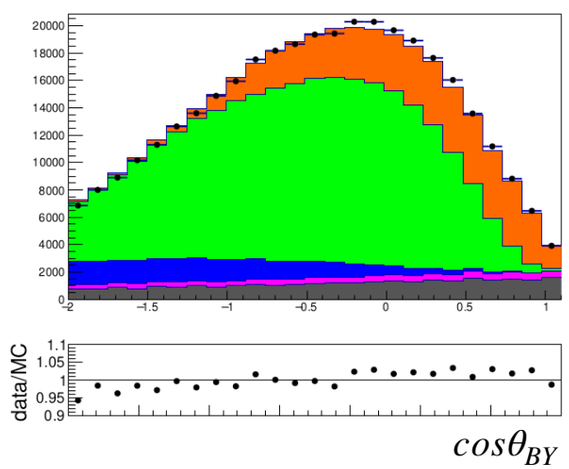


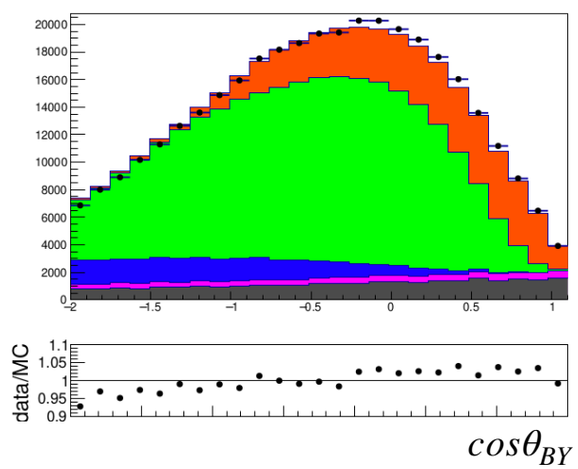


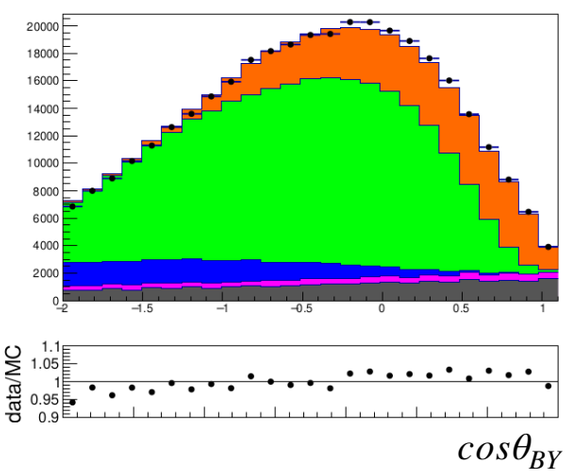






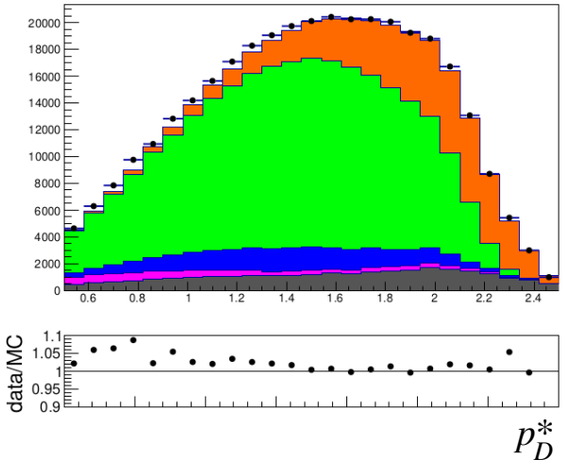




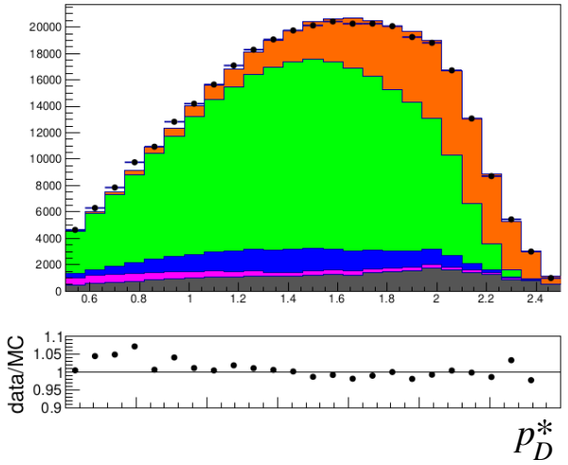


Reweight ROE variables: signal region

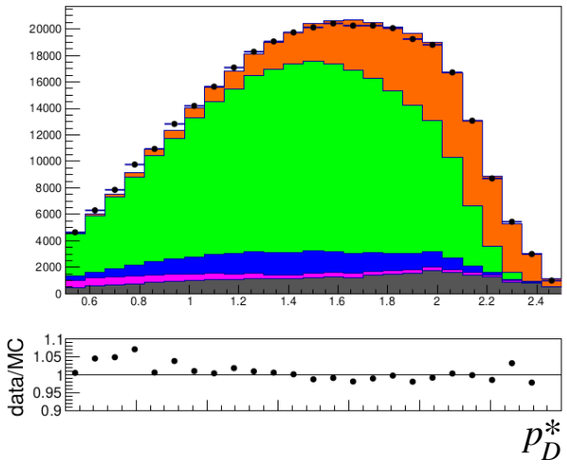
Starting point



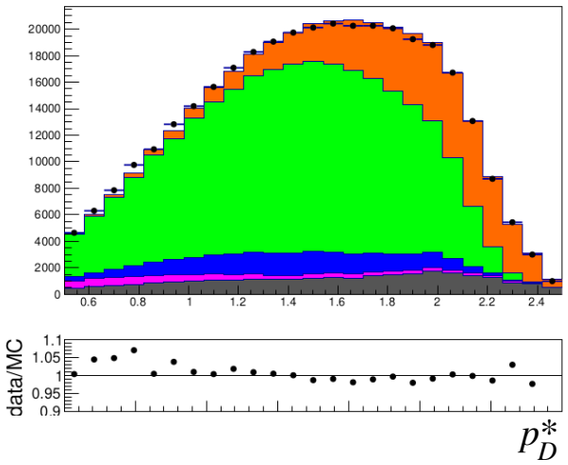
ROE(M)xROE(P) reweighting

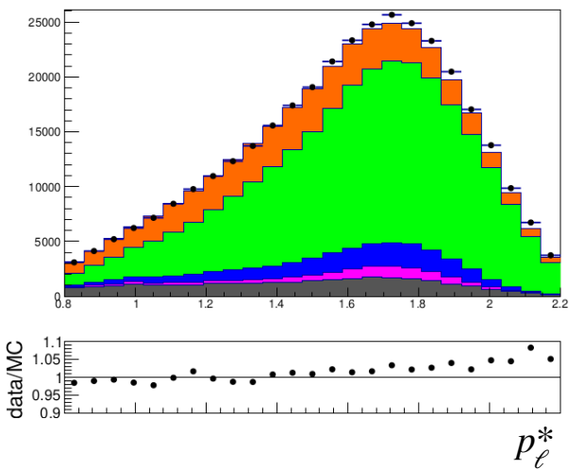


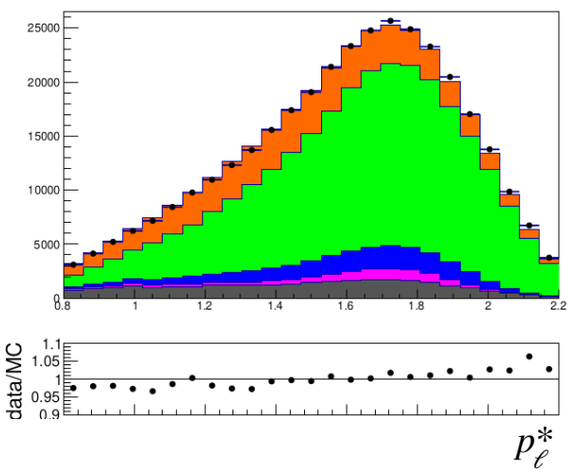
ROE(M)xROE(E) reweighting

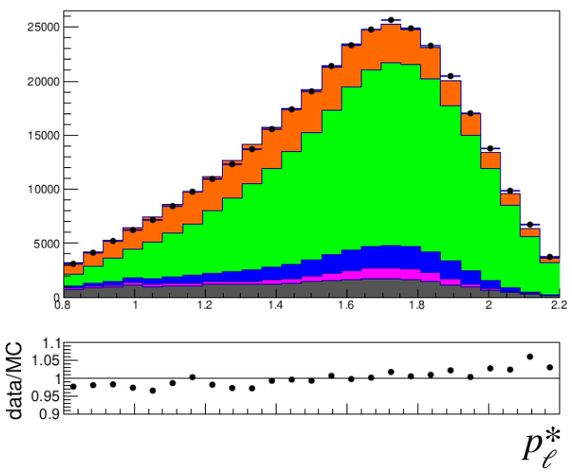


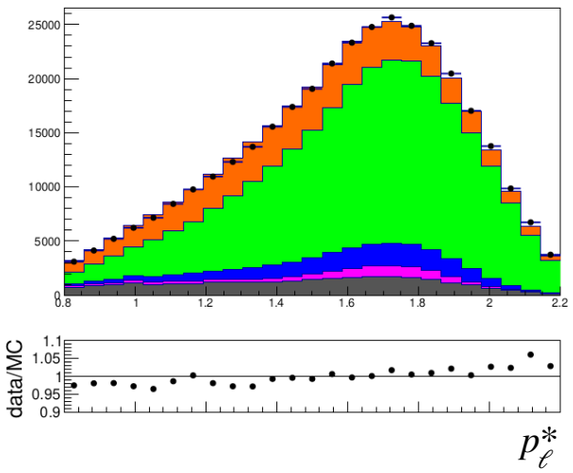
ROE(P)xROE(E) reweighting

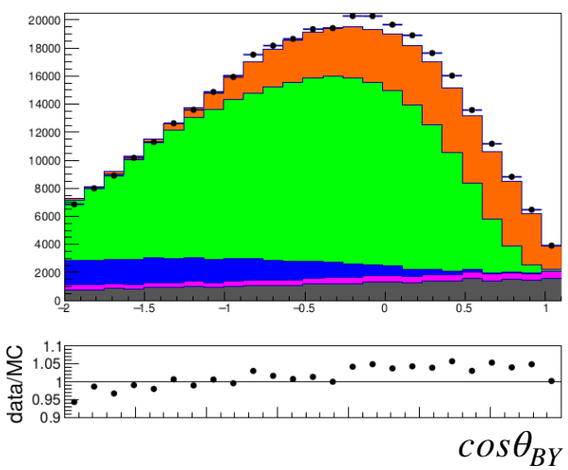


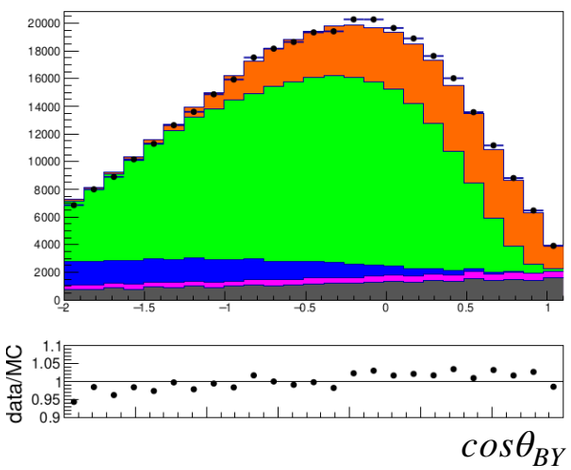


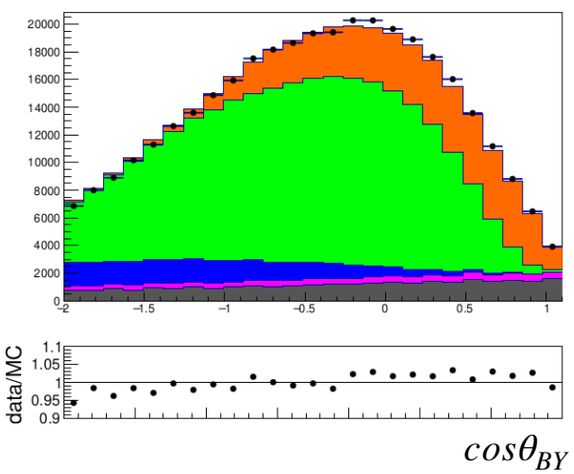


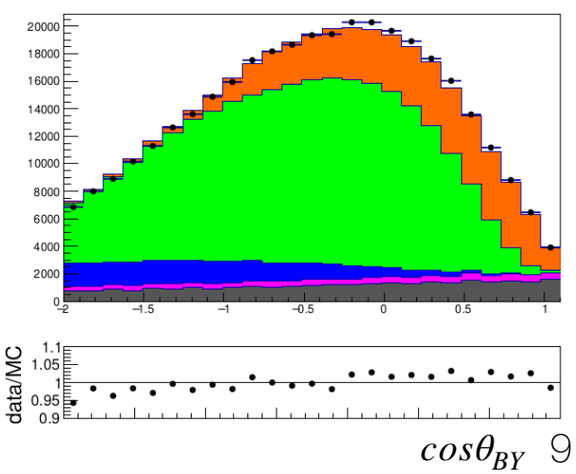










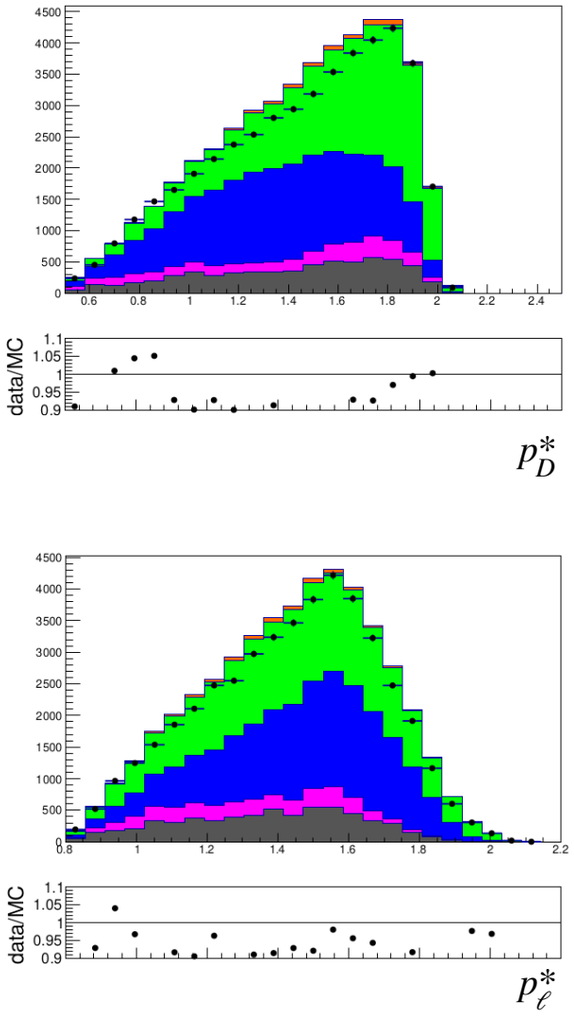


Backup

Reweight ROE(M) variable: $cos\theta_{BY}$ sideband

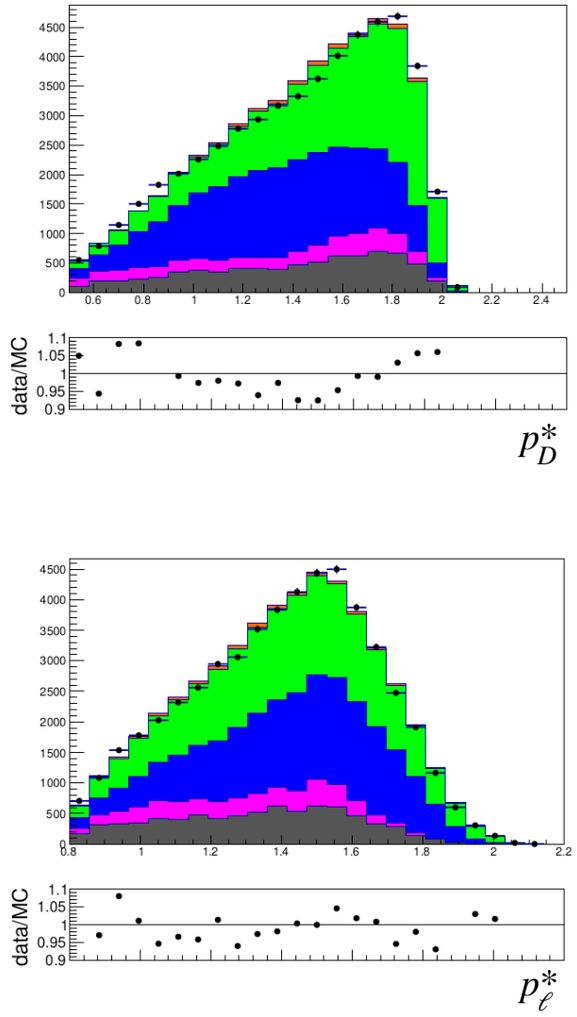
$B \to D^0 e\nu$

Starting point



$B \to D^0 e\nu$

ROE(M) reweighting



New sample: $B \to D^0 e\nu$

$D\ell\nu$