

EMCAL/DCAL TRIGGER QA: AN EARLY LOOK OFFLINE

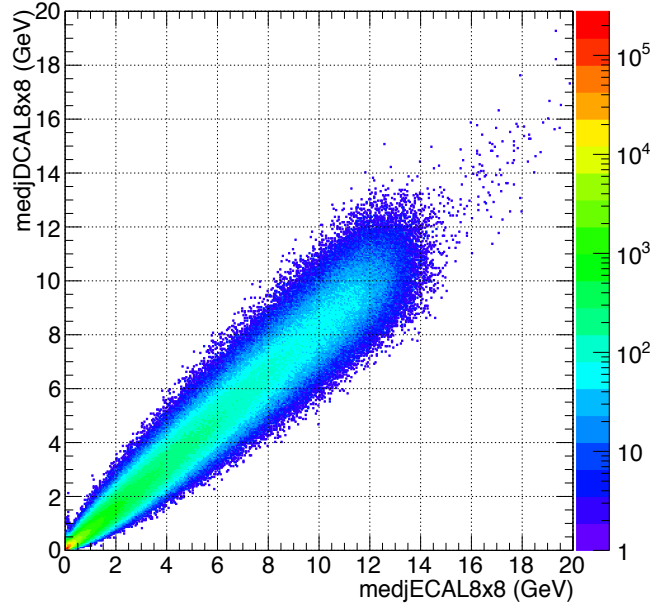
James Mulligan
Yale University

ALICE Jet Workshop, LBNL
Jan 15, 2016

Salvatore Aiola (Yale), Raymond Ehlers (Yale), Markus Fasel (LBNL), James Mulligan (Yale), Mateusz Ploskon (LBNL), Martin Poghosyan (ORNL)

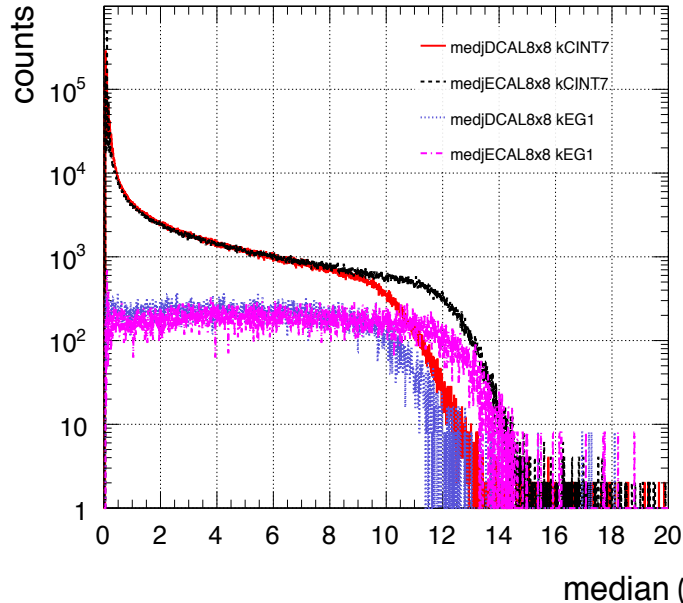
Median Patch Energy

DCal Median vs. EMCal Median

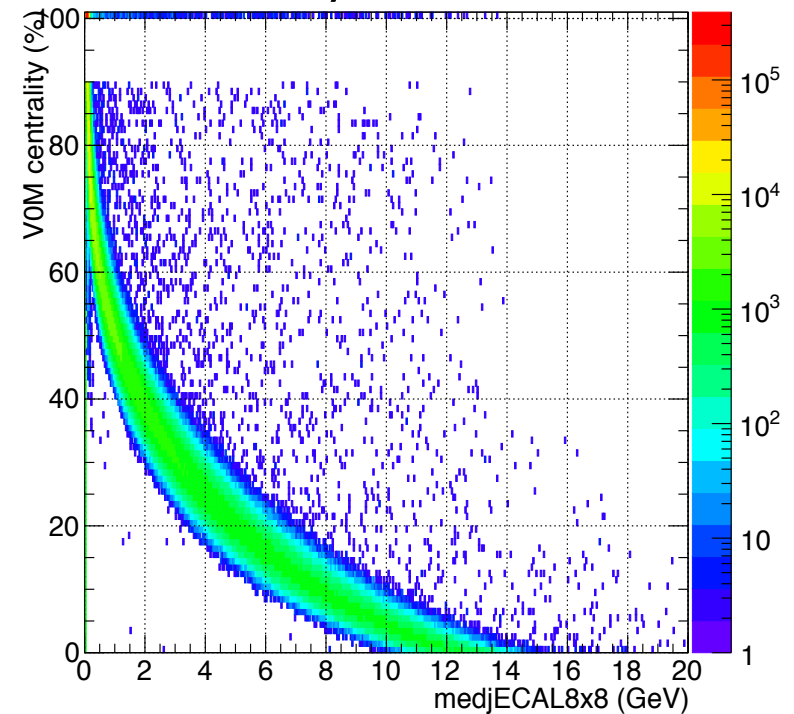


- EMCal has slightly larger median than DCal

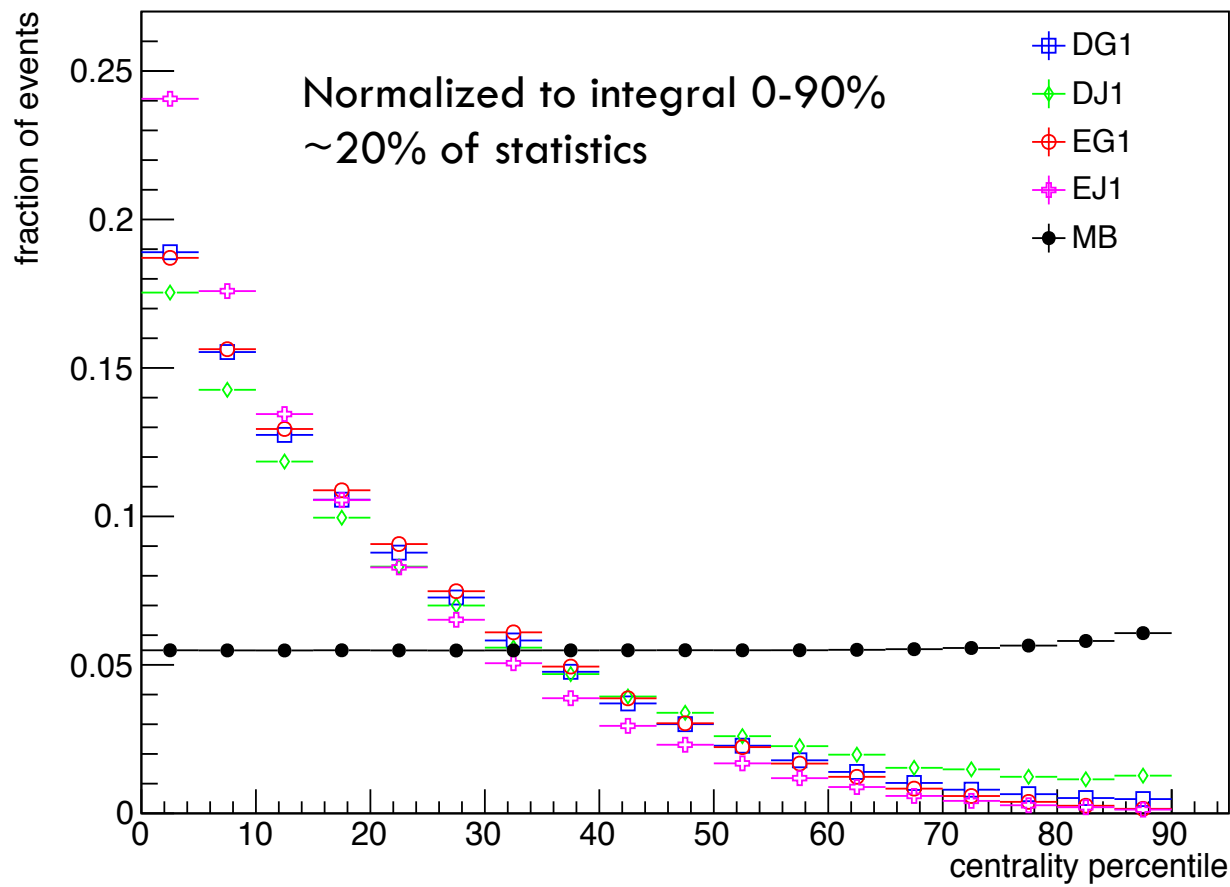
Median Distribution, Gamma Patch



V0 Centrality vs. Median



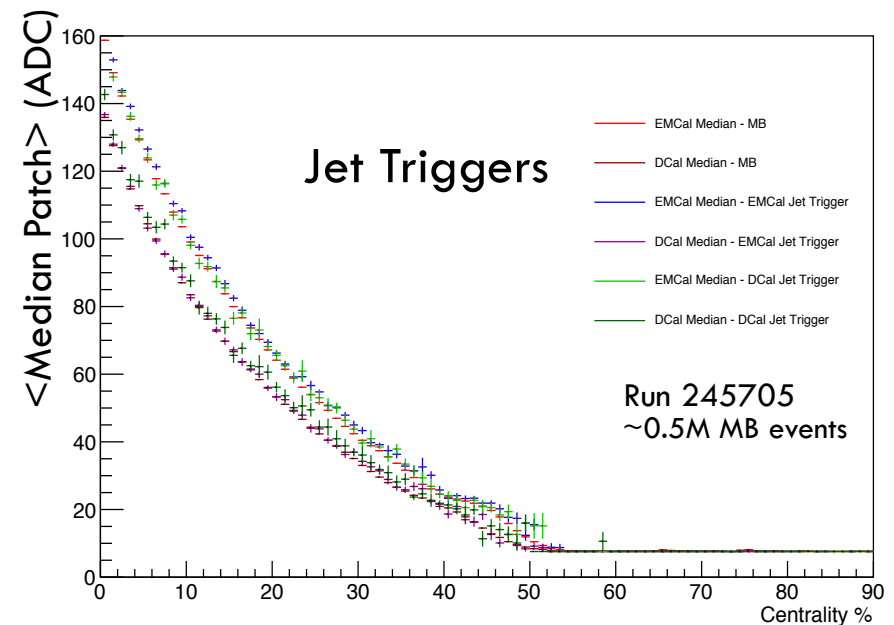
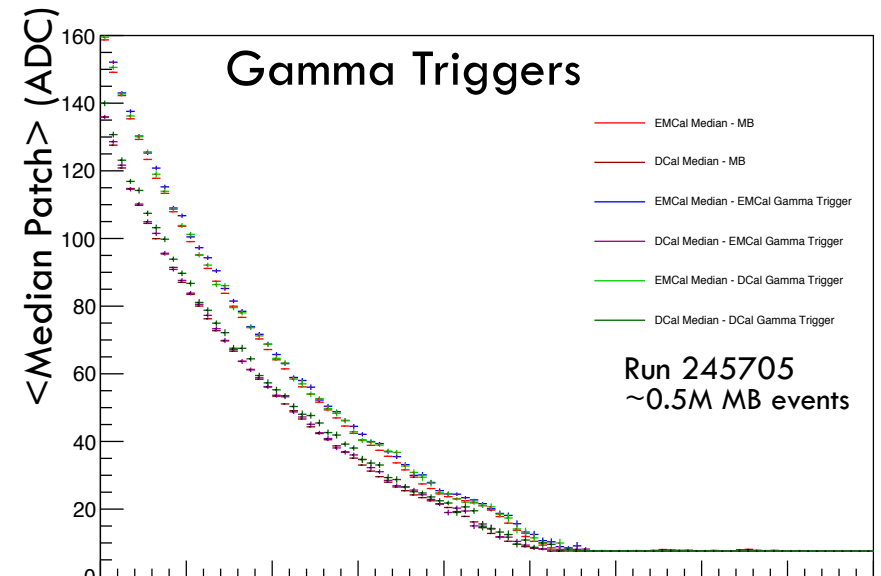
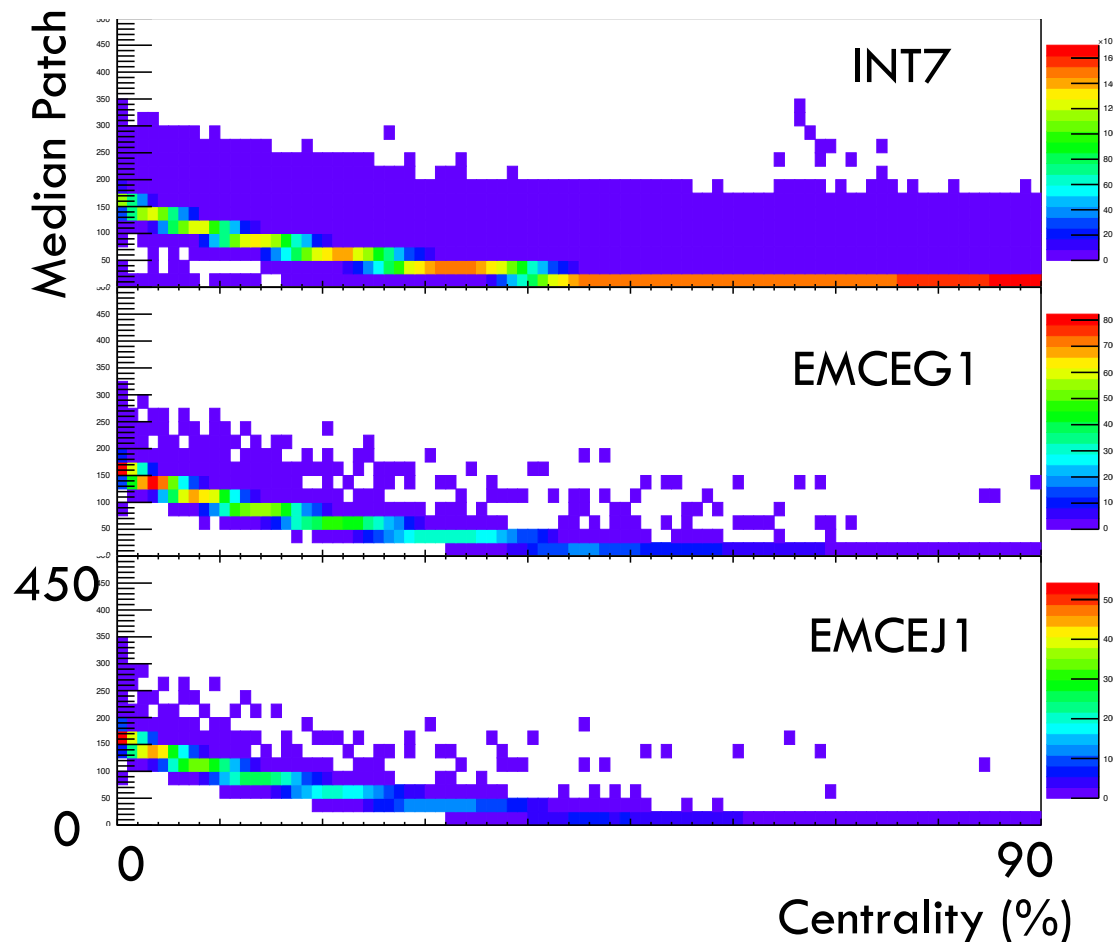
Centrality Distribution



- EMCal/DCal have slightly different shapes for jet trigger, but are nearly identical for gamma trigger

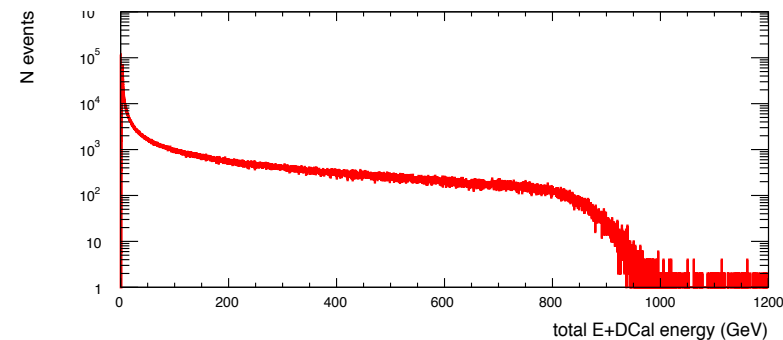
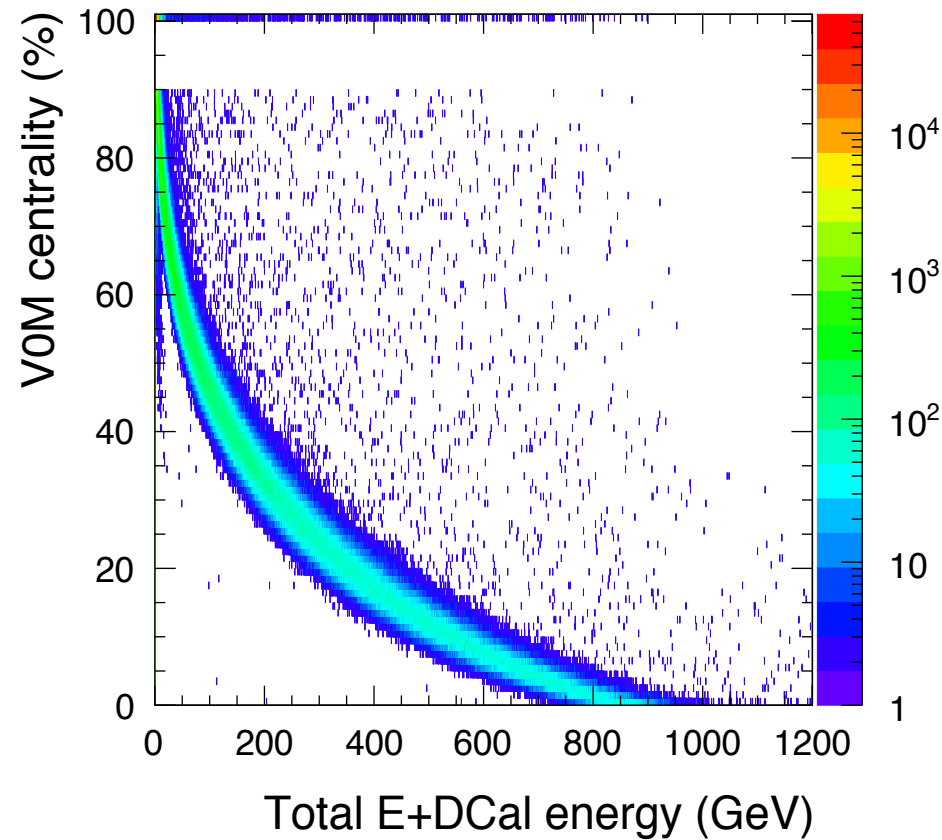
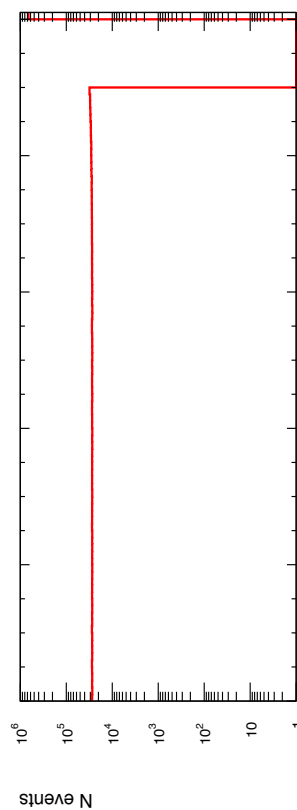
<Median Patch> vs. Centrality

- The median is roughly independent of the trigger class, for a given centrality

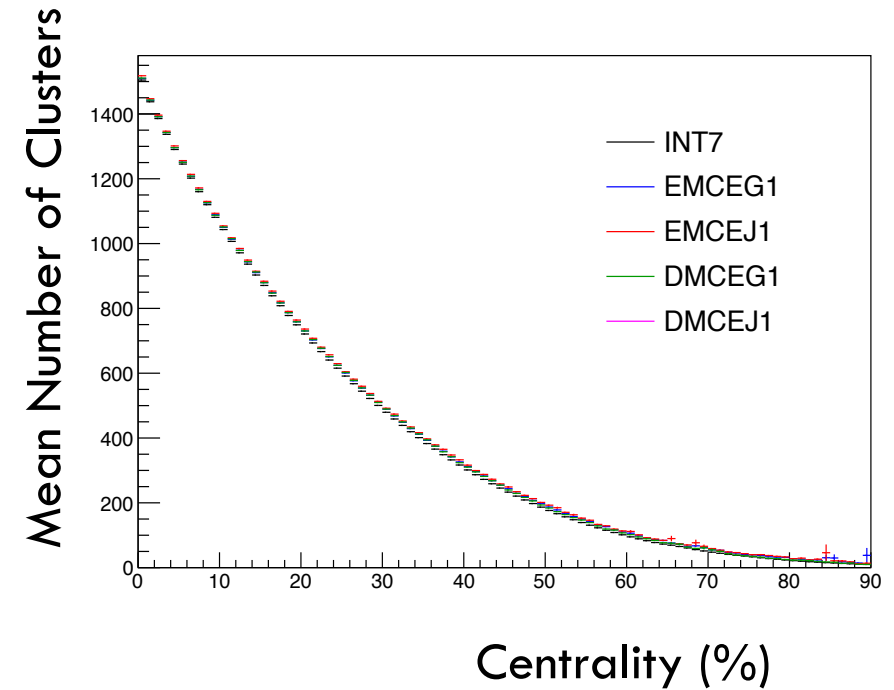
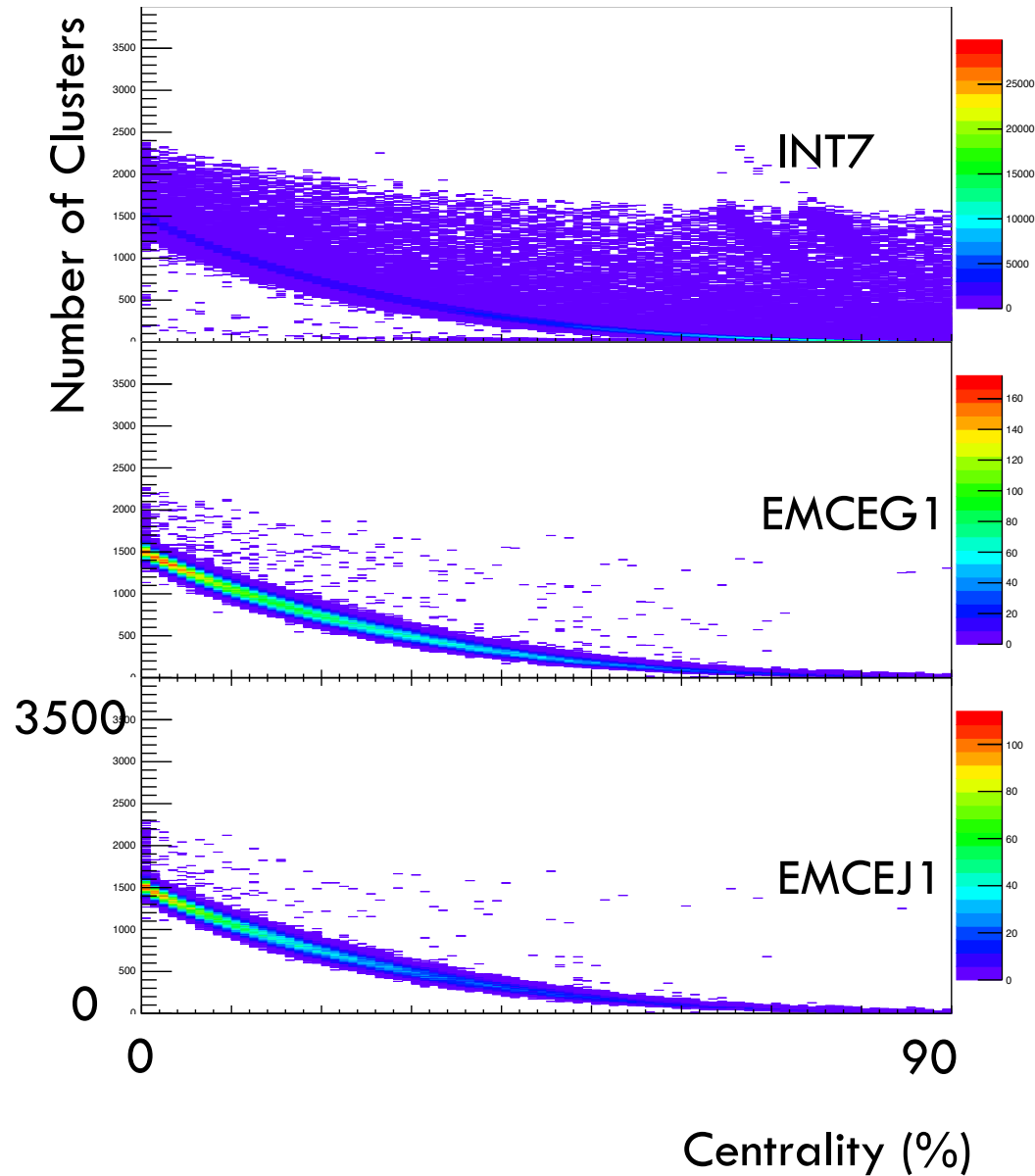


E+DCal energy and V0M centrality

kCINT7 [1.58 M]

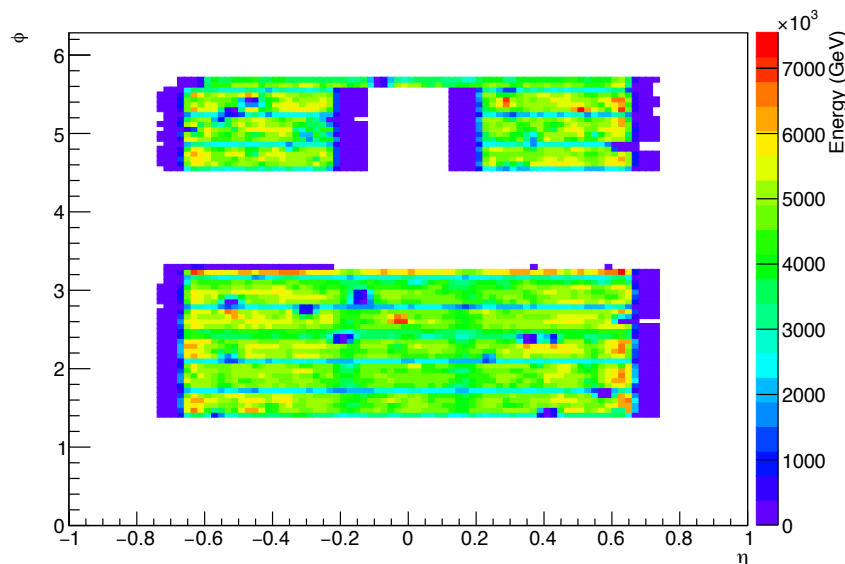
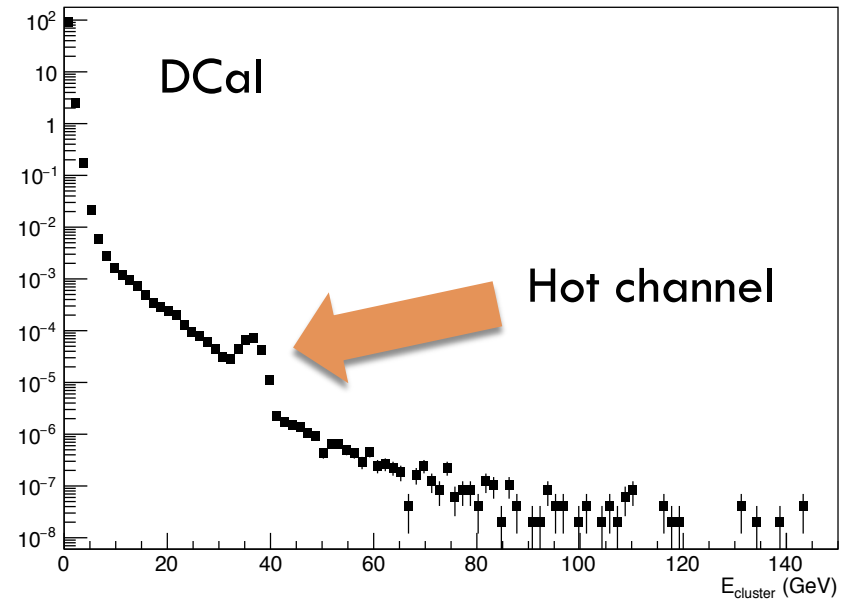
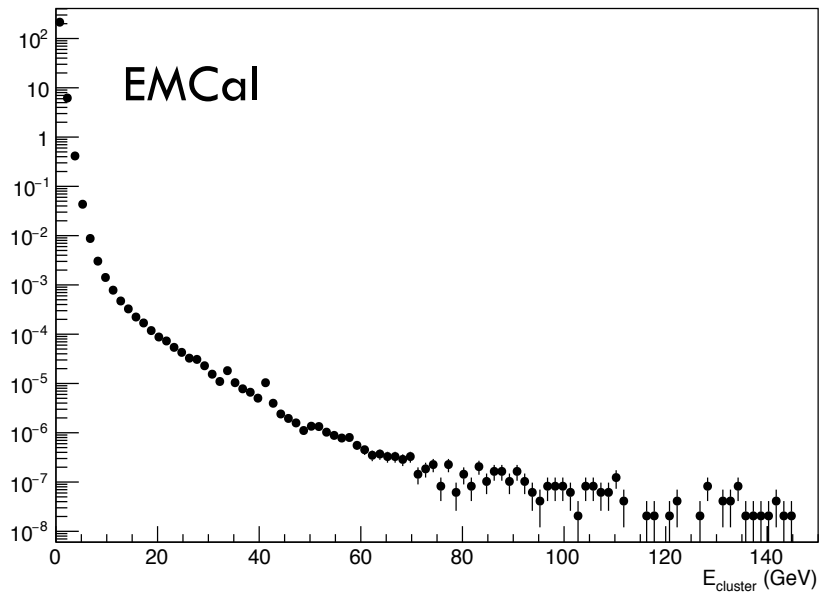


$\langle \text{Number of Clusters} \rangle$ vs. Centrality



~10% statistics

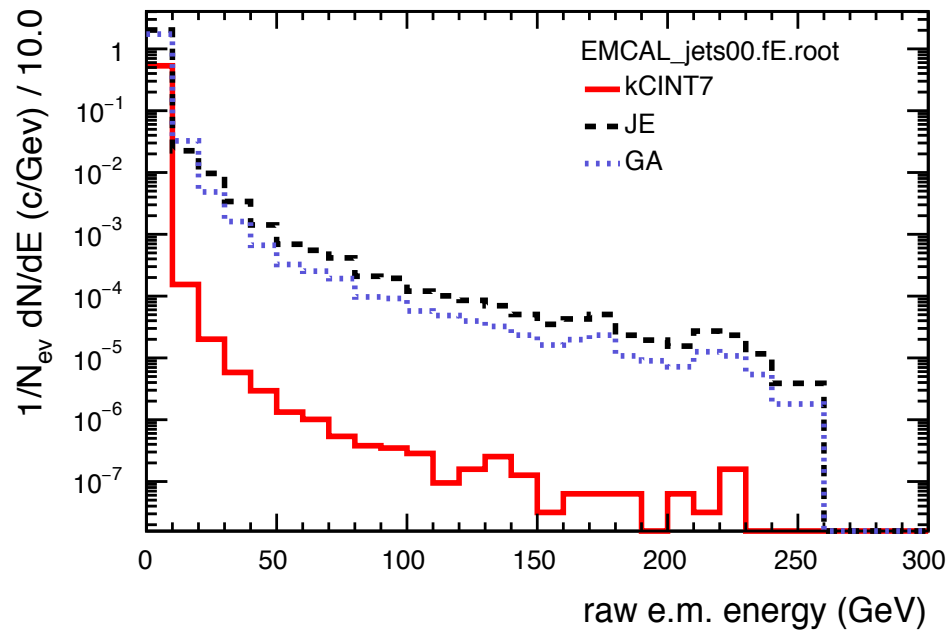
Cluster Spectra, Min Bias



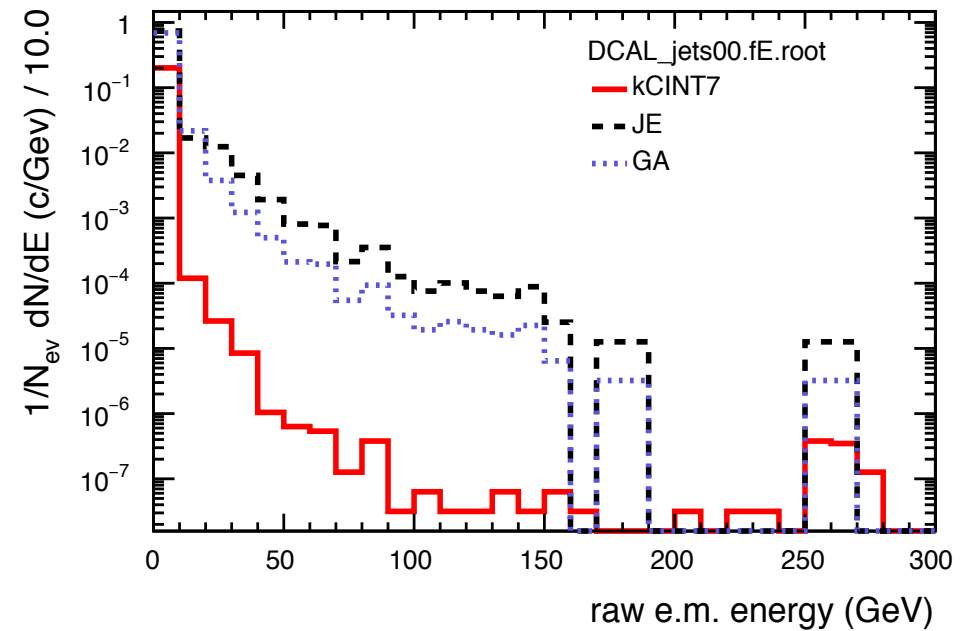
A preliminary bad channel map was applied, but some hot channels still need to be masked

Cluster Spectra

EMCal Clusters

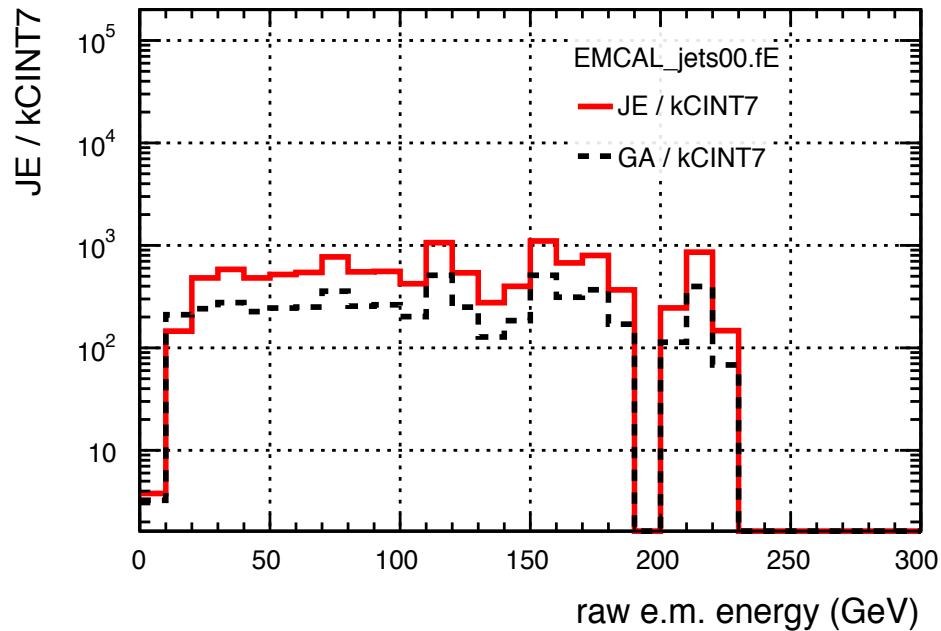


DCal Clusters

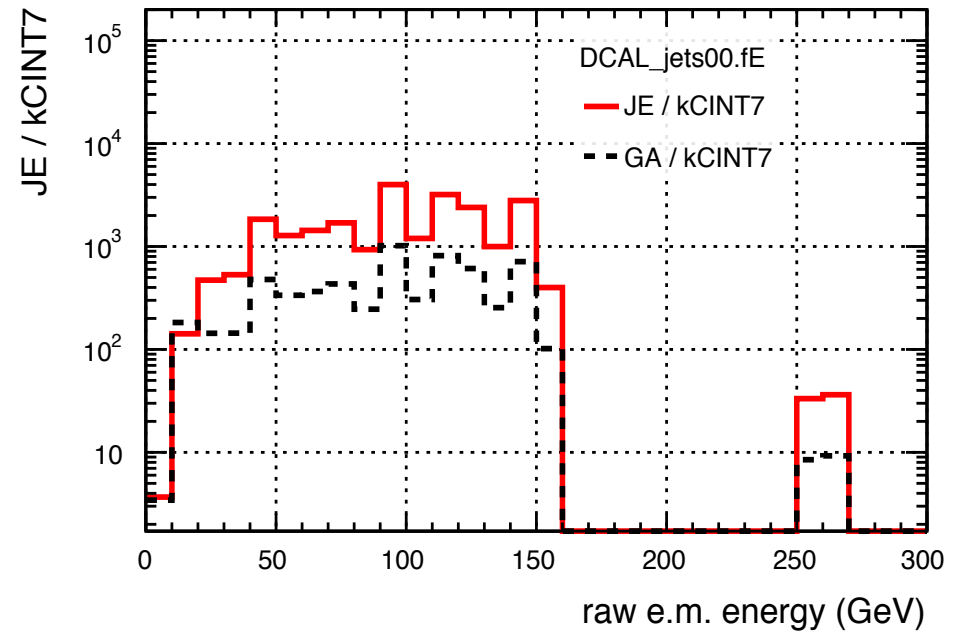


Turn-On Curves: Clusters

EMCal Clusters

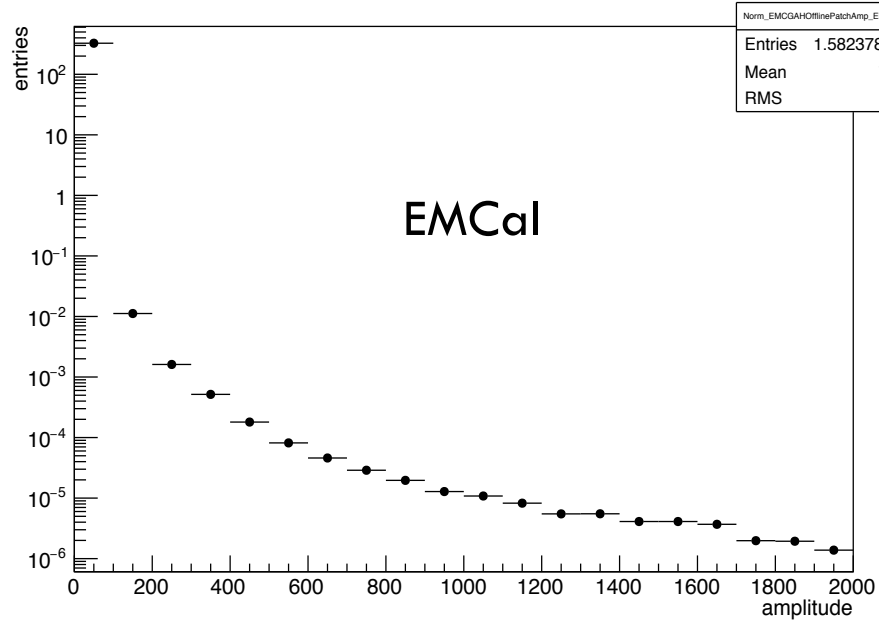


DCal Clusters



Gamma Patch Spectra, Min Bias

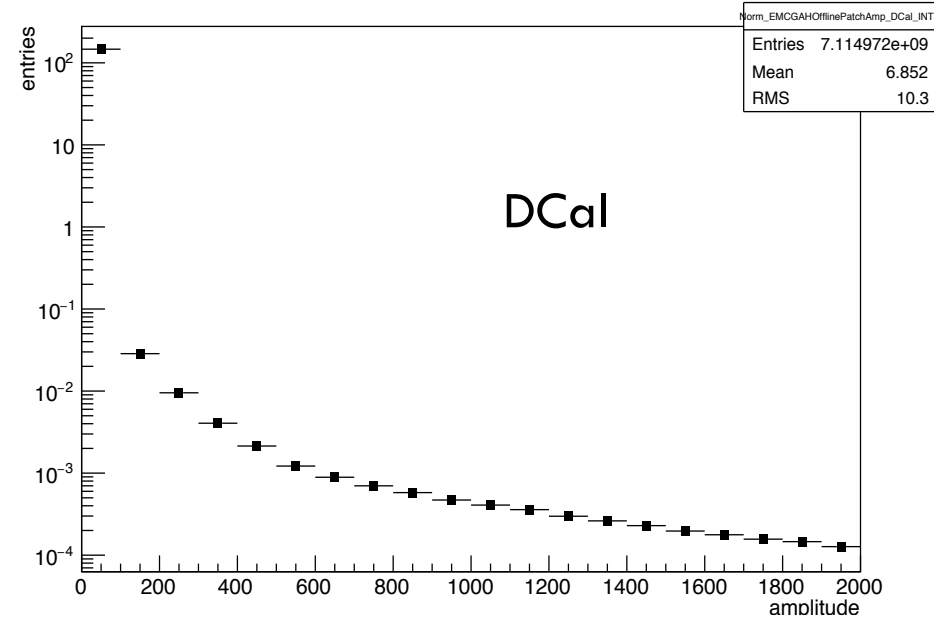
Norm_EMCGAHOOfflinePatchAmp_EMCal_INT7



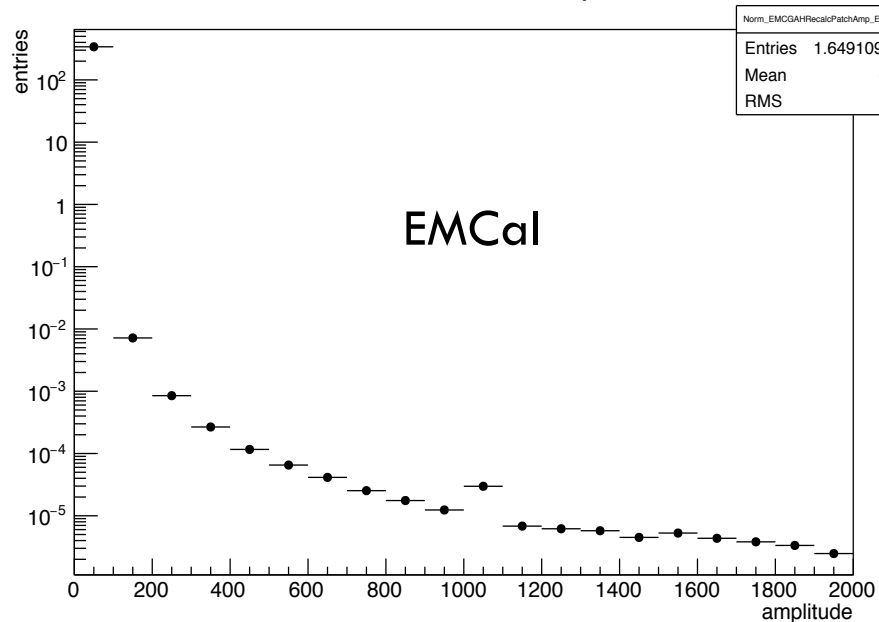
FEE data
(offline
reconstructed
patches)

Same
algorithm as
online, but
using offline
ADC counts

Norm_EMCGAHOOfflinePatchAmp_DCal_INT7

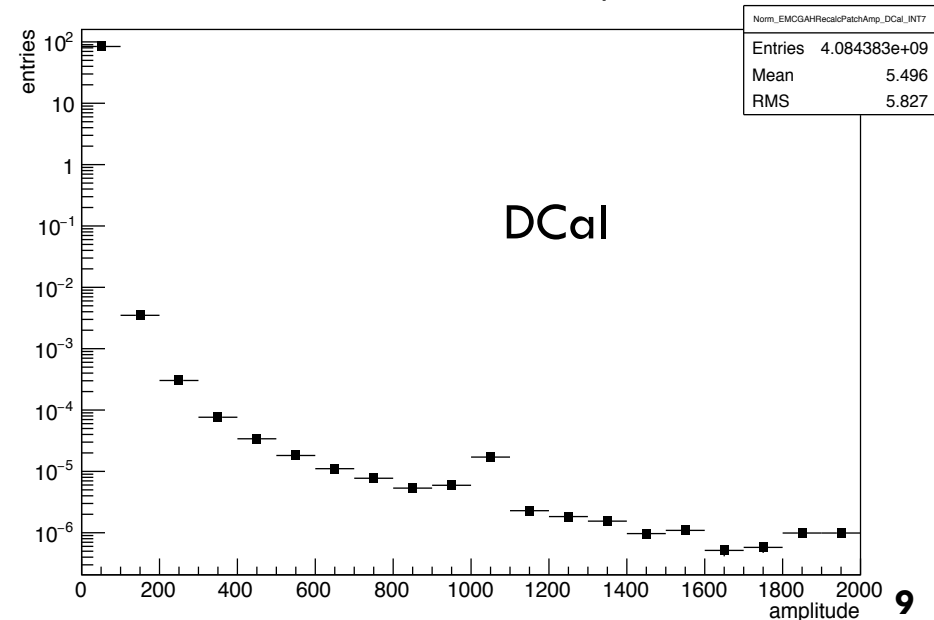


Norm_EMCGAHRRecalcPatchAmp_EMCal_INT7



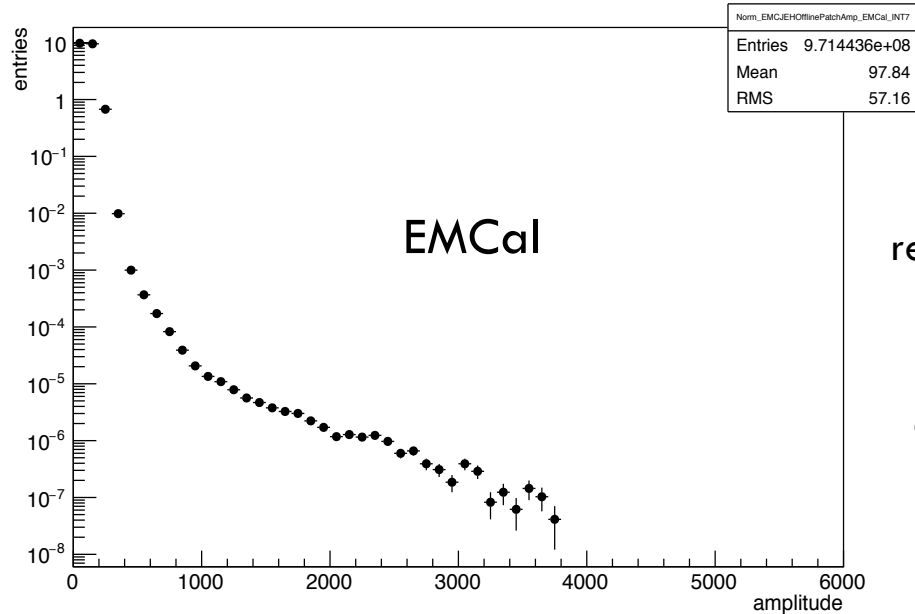
STU data
(recalculated
patches)

Norm_EMCGAHRRecalcPatchAmp_DCal_INT7



Jet Patch Spectra, Min Bias

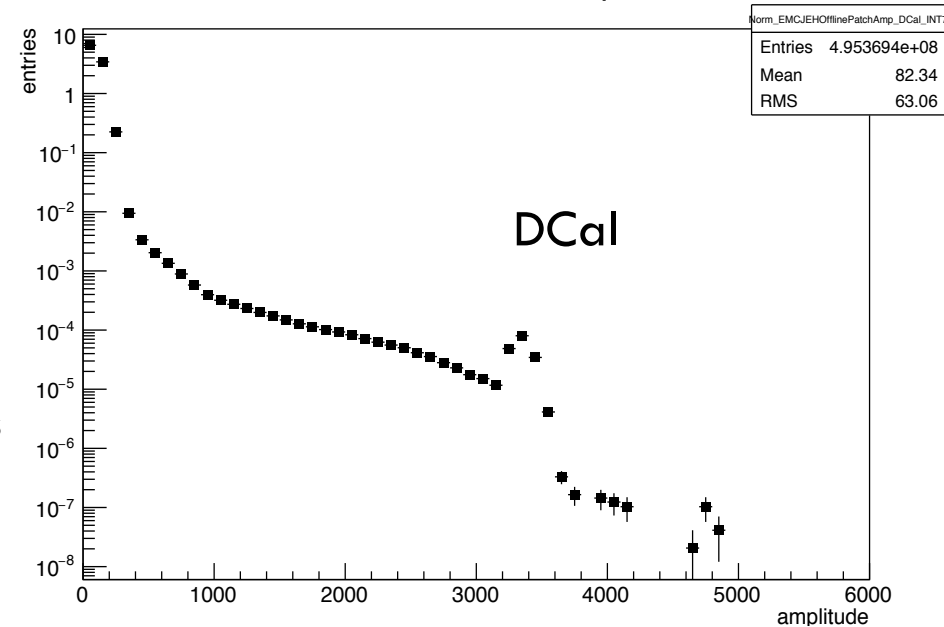
Norm_EMCJEHOfflinePatchAmp_EMCal_INT7



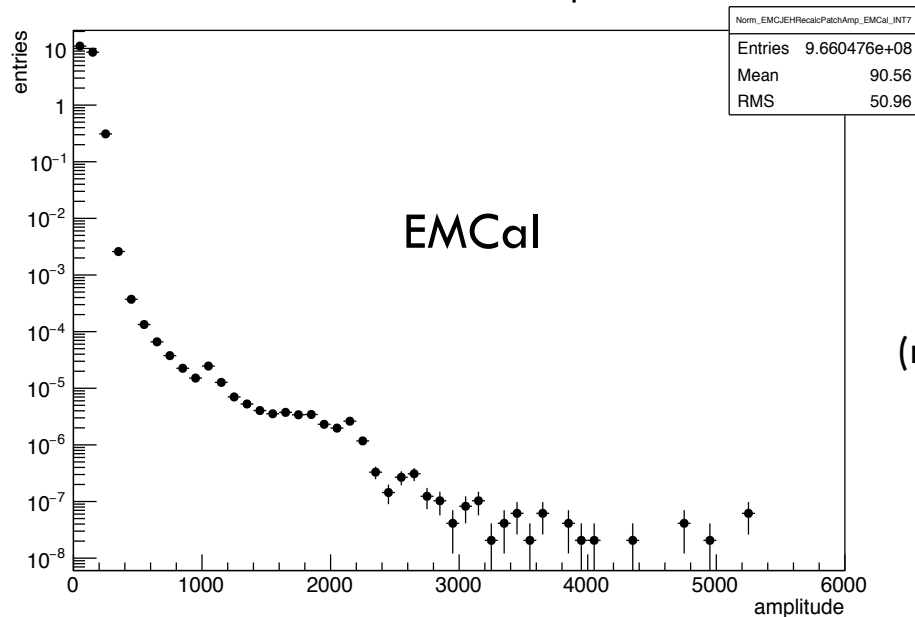
FEE data
(offline
reconstructed
patches)

Same
algorithm as
online, but
using offline
ADC counts

Norm_EMCJEHOfflinePatchAmp_DCal_INT7

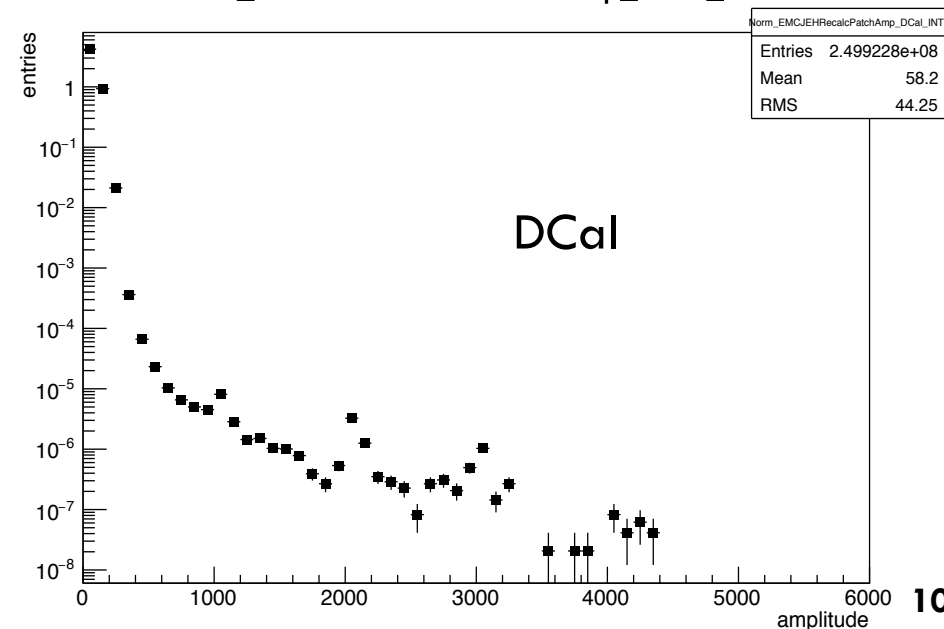


Norm_EMCJEHRecalcPatchAmp_EMCal_INT7

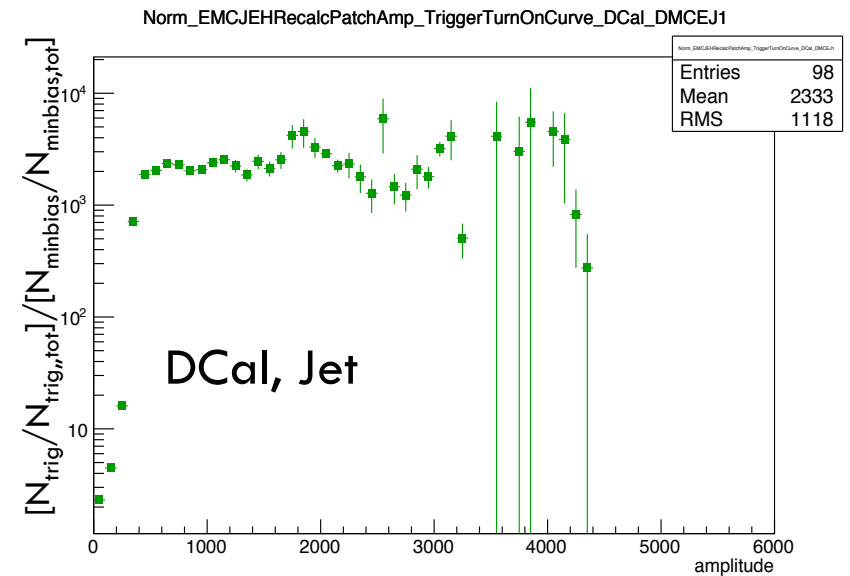
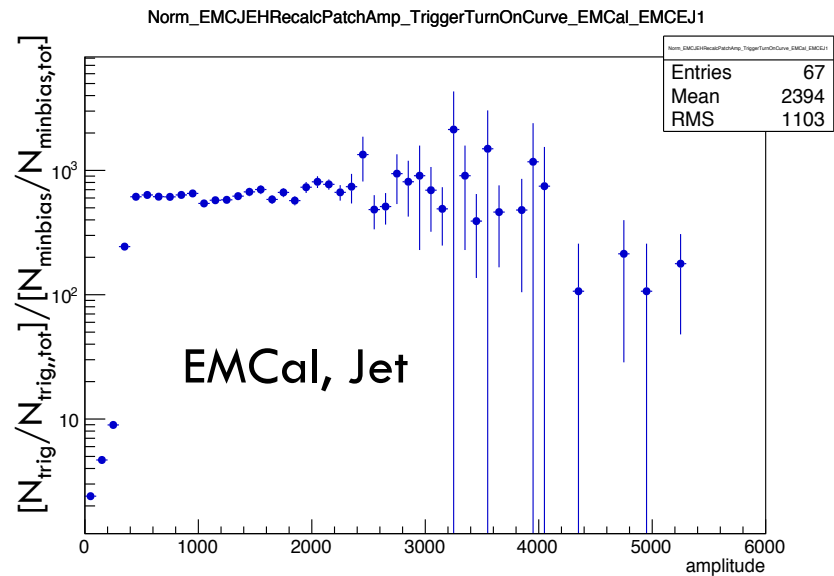
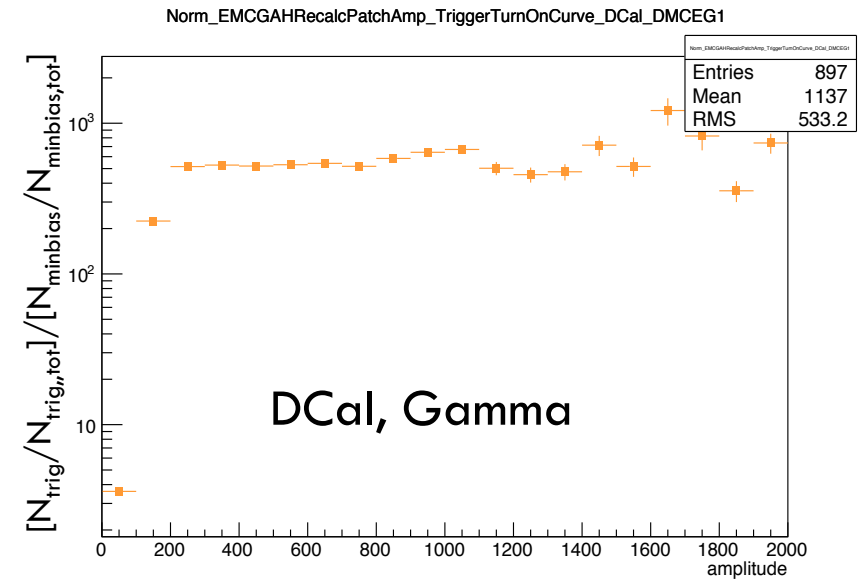
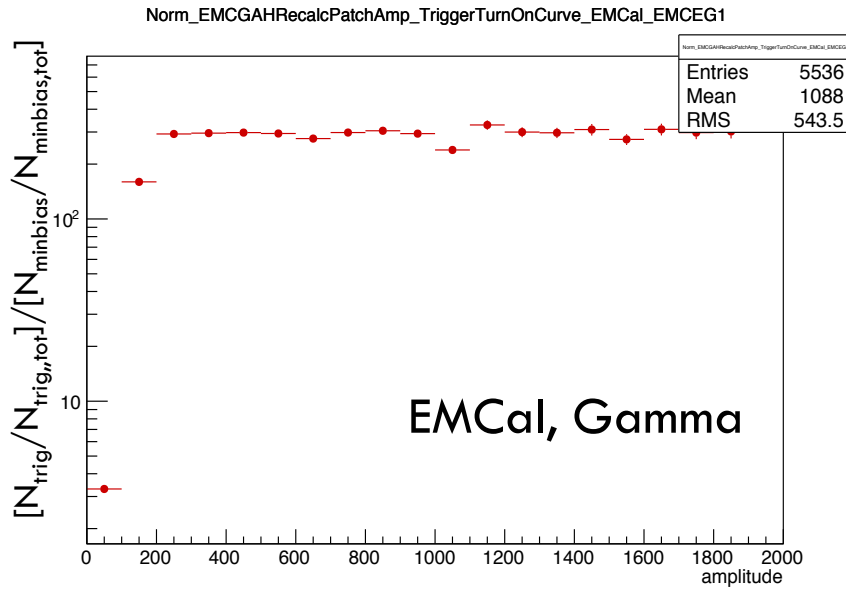


STU data
(recalculated
patches)

Norm_EMCJEHRecalcPatchAmp_DCal_INT7



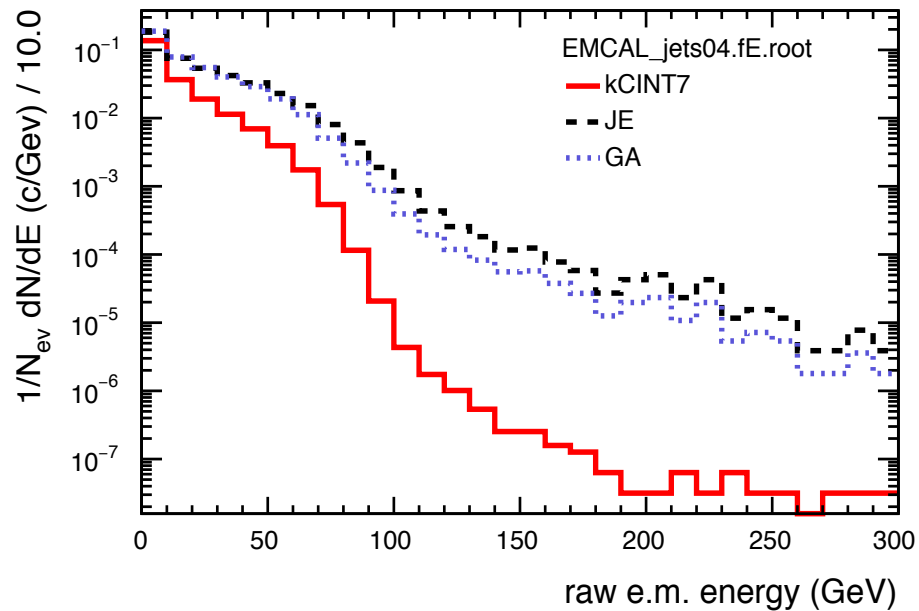
Turn-On Curves: Patches



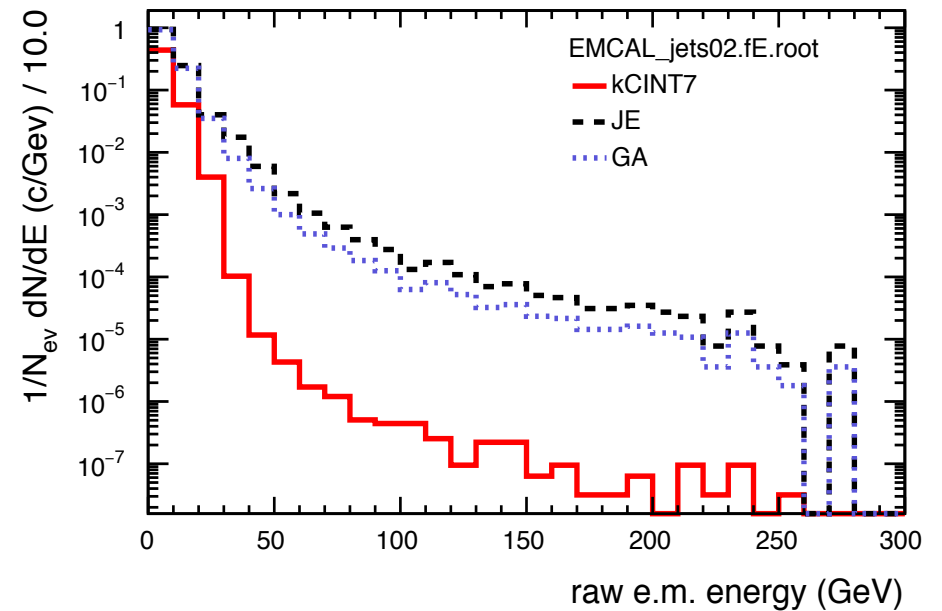
Recalculated patches from STU

Jet Spectra

R=0.4



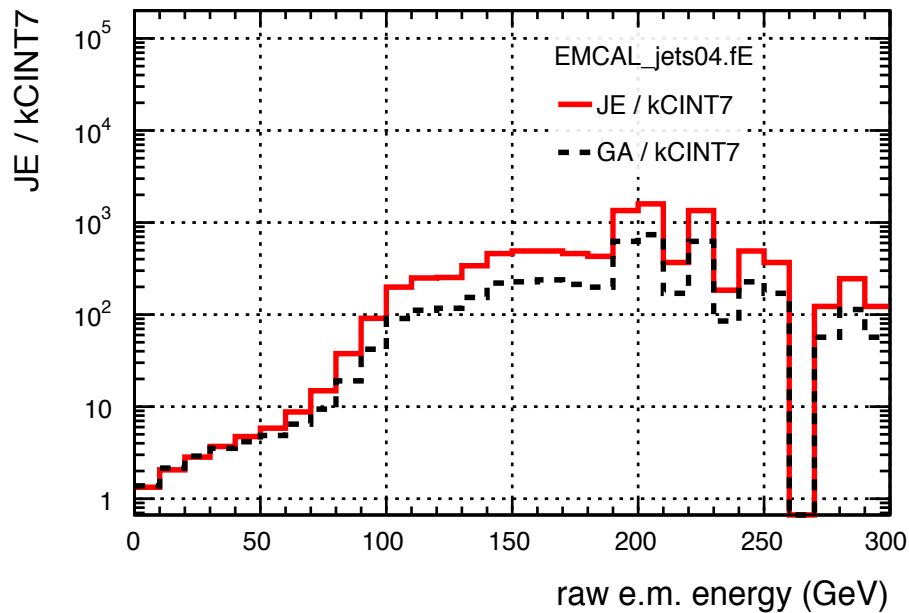
R=0.2



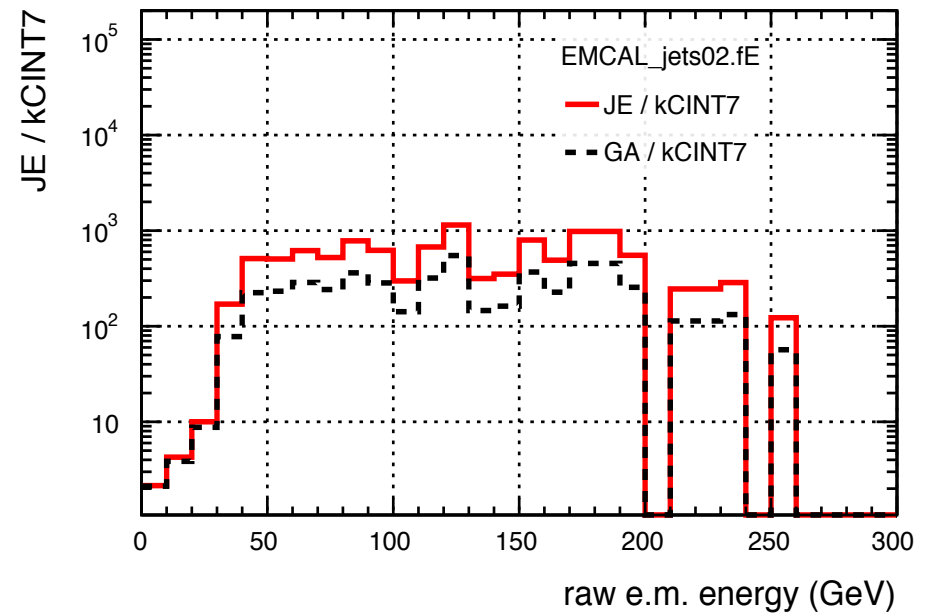
Calo jets, not full jets

Turn-On Curves

R=0.4



R=0.2



Calo jets, not full jets

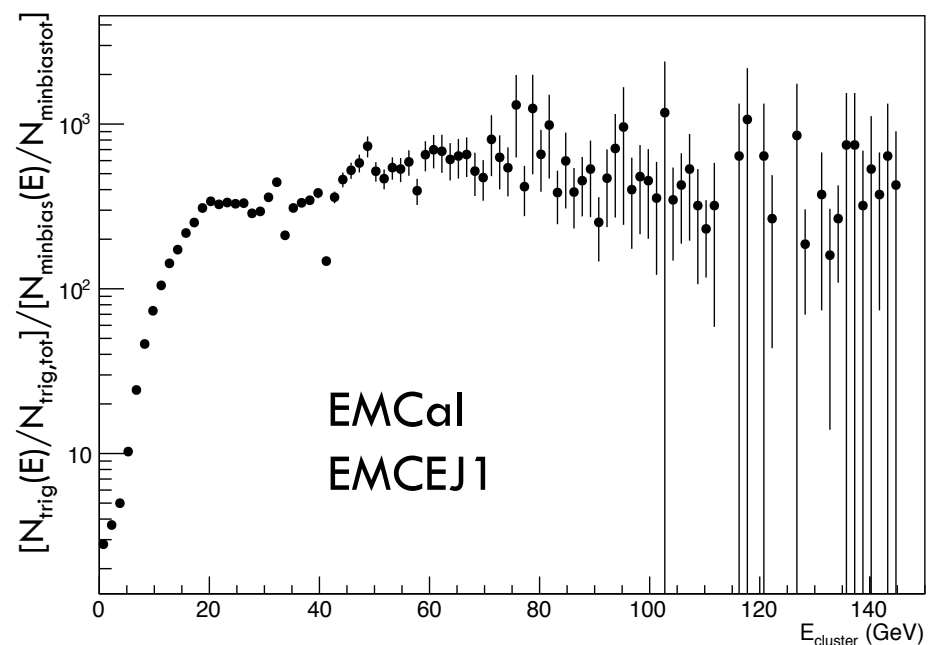
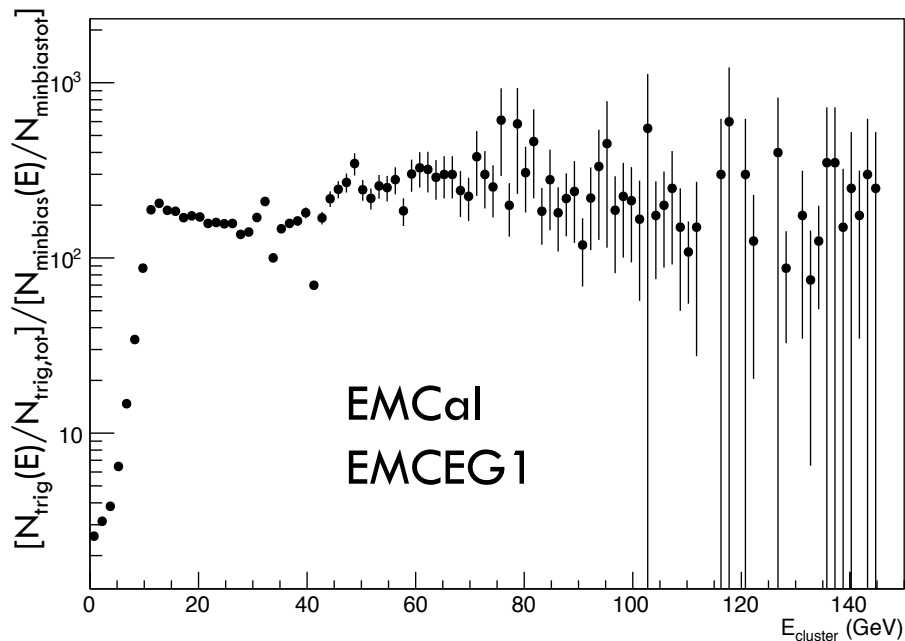
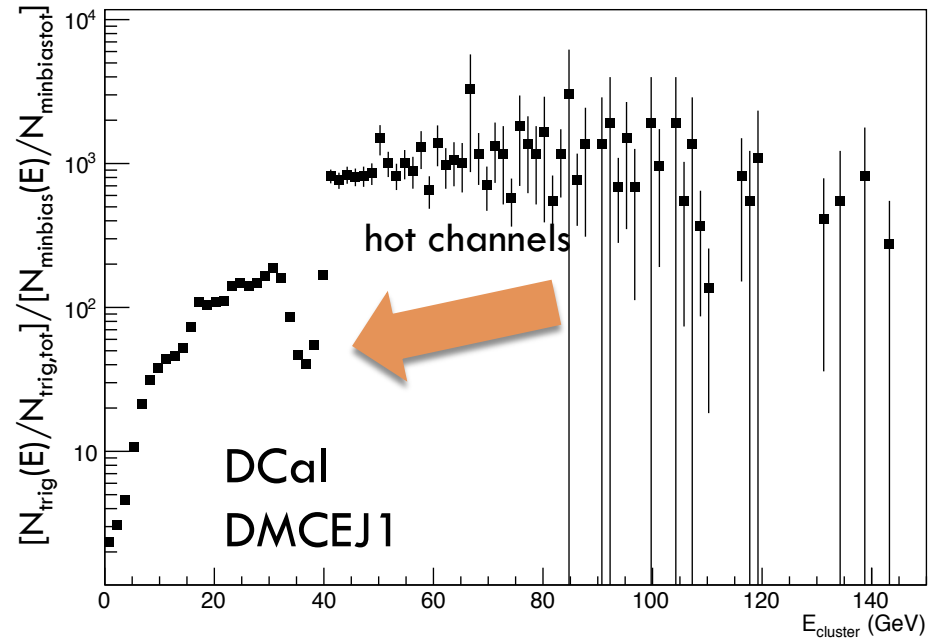
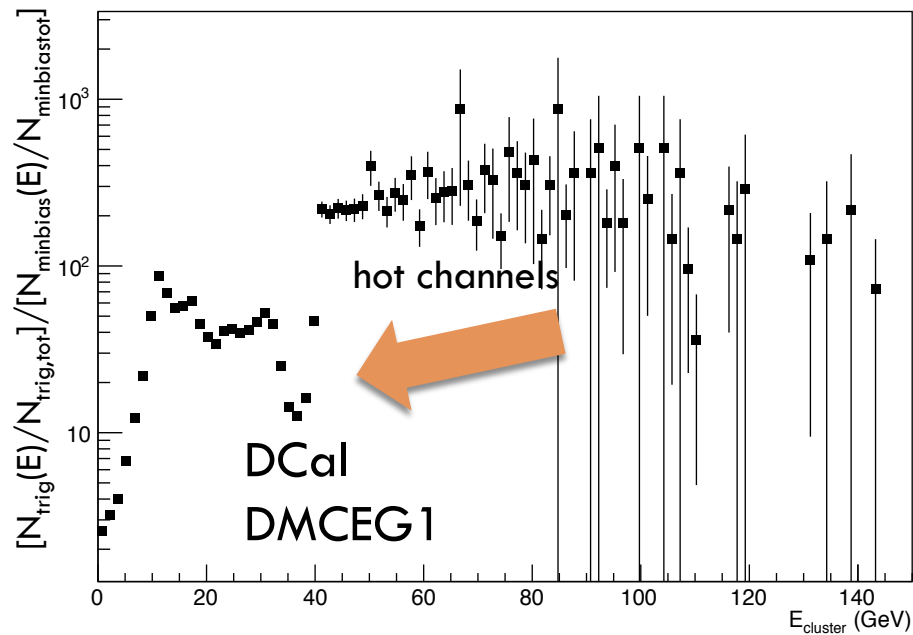
Conclusions

- First look at triggers is reasonably promising
 - ▣ Need to look at turn-on curves in full jets, in more detail, with better bad channel maps, etc. as reconstruction advances
- Thanks to Mateusz, Markus, Martin for helping us Yale students to jump in and help out for the heavy ion run!



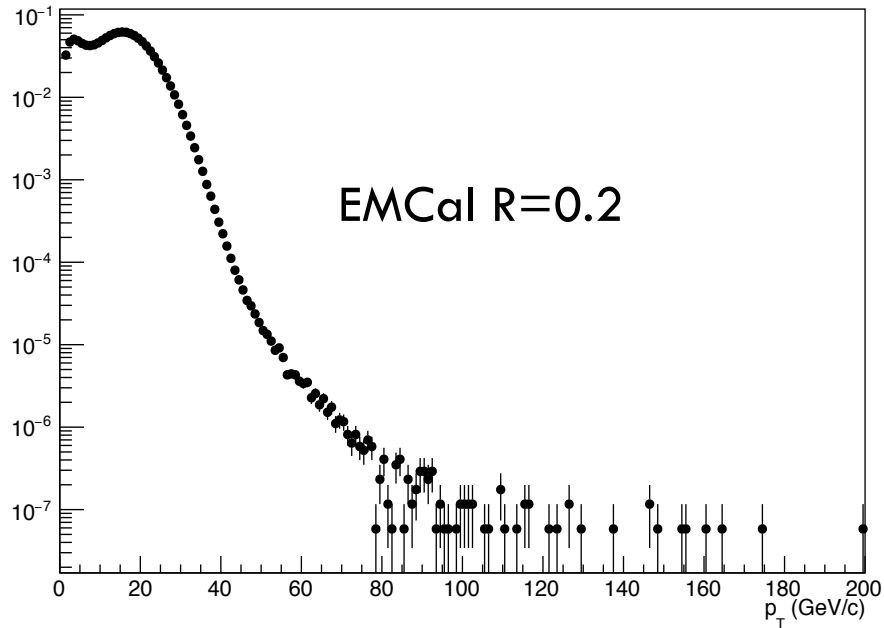
Backup

Turn-On Curve: Clusters

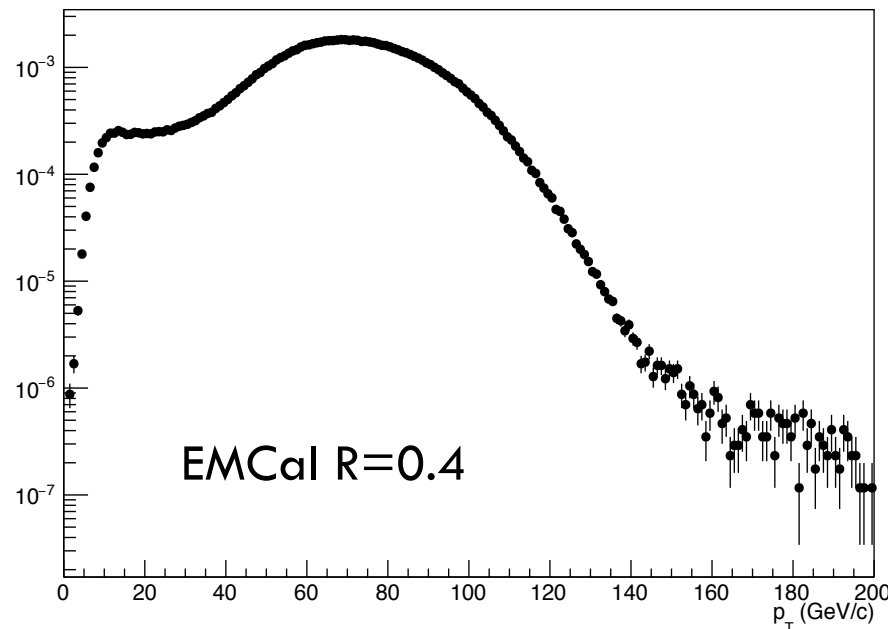
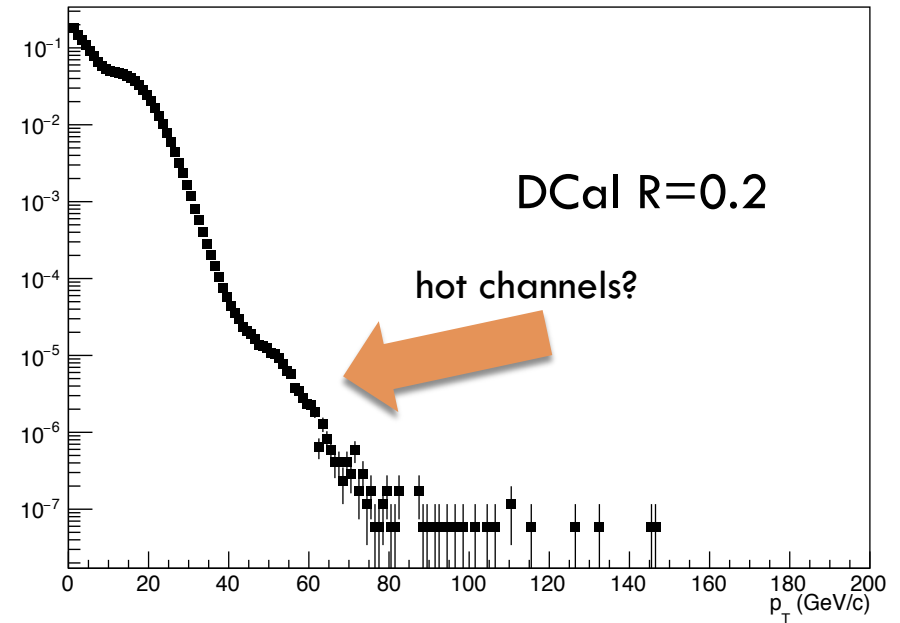


Jet Spectra, Min Bias 0-10%

Norm_JetPt_R020_EMCal_Cent0_INT7

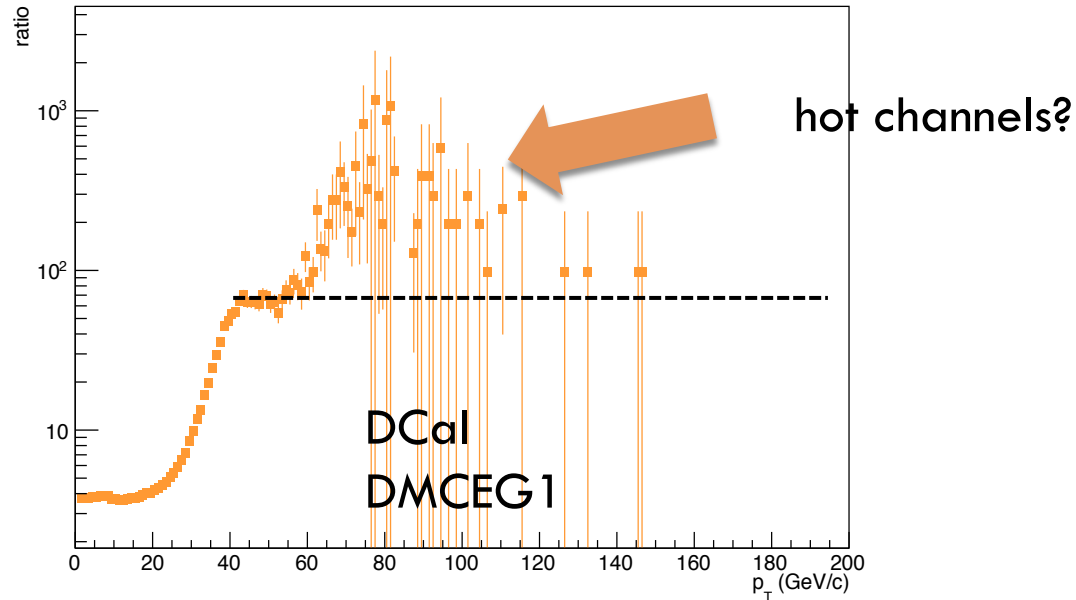


Norm_JetPt_R020_DCal_Cent0_INT7

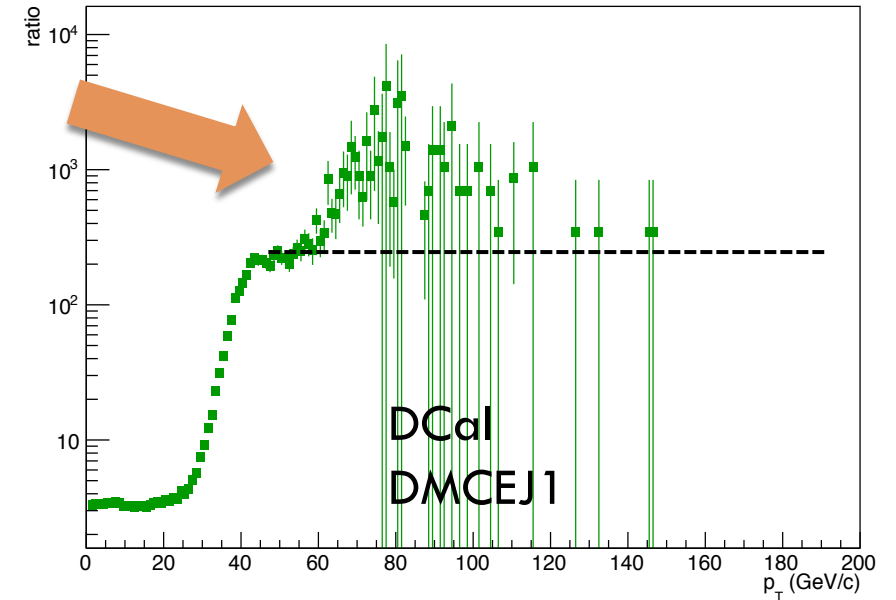


Jet Turn-On, $R=0.2$, 0-10%

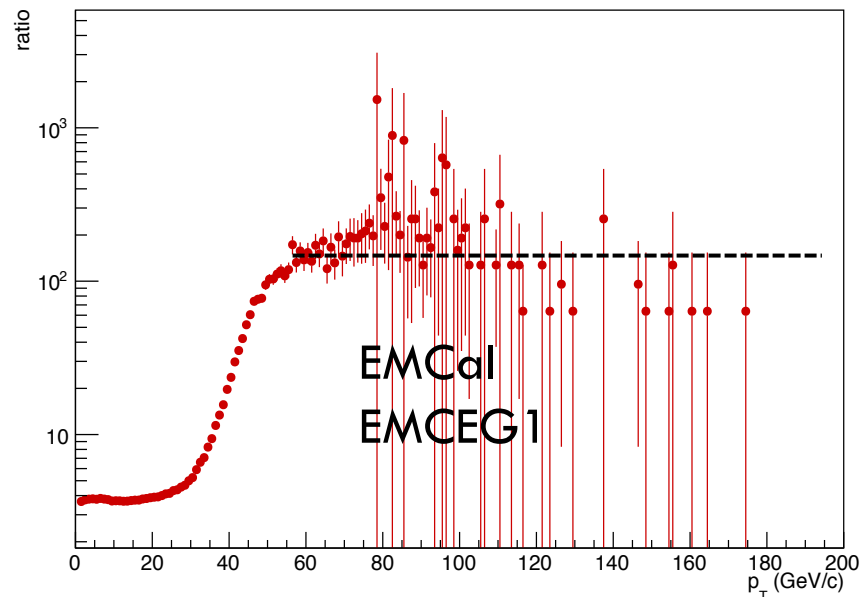
Norm_JetPt_R020_TriggerTurnOnCurve_DCal_Cent0_DMCEG1



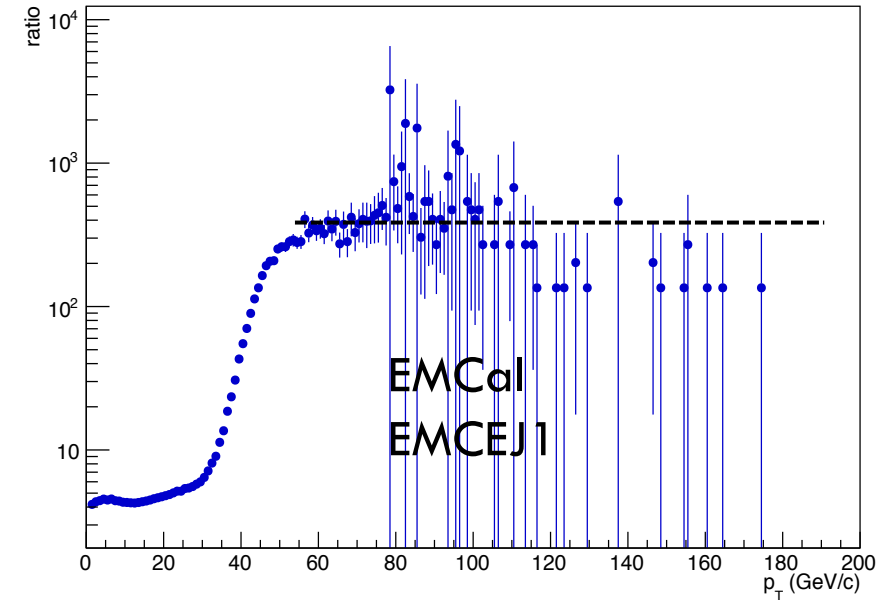
Norm_JetPt_R020_TriggerTurnOnCurve_DCal_Cent0_DMCEJ1



Norm_JetPt_R020_TriggerTurnOnCurve_EMCaI_Cent0_EMCEG1

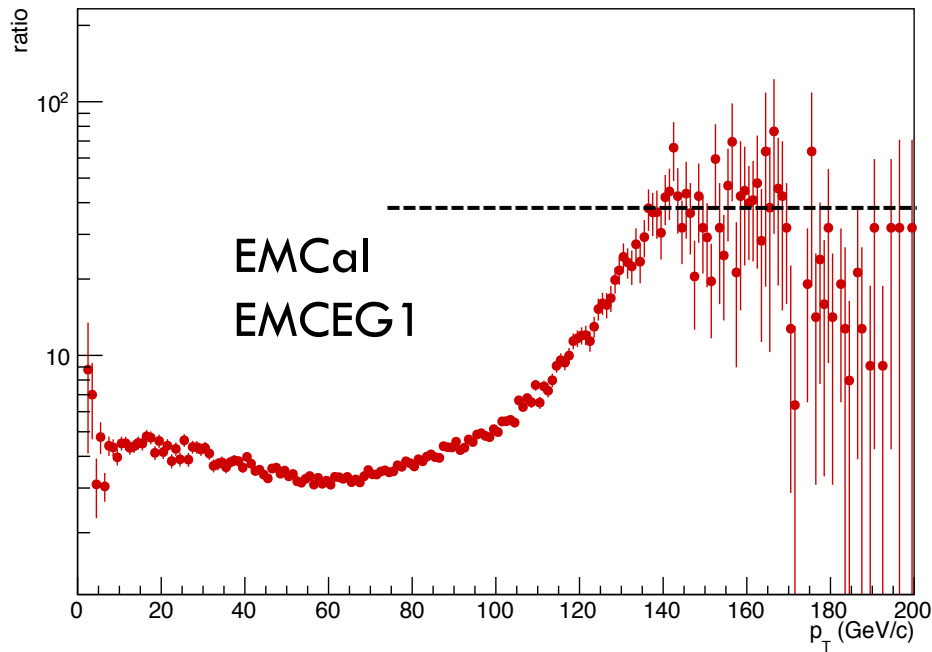


Norm_JetPt_R020_TriggerTurnOnCurve_EMCaI_Cent0_EMCEJ1

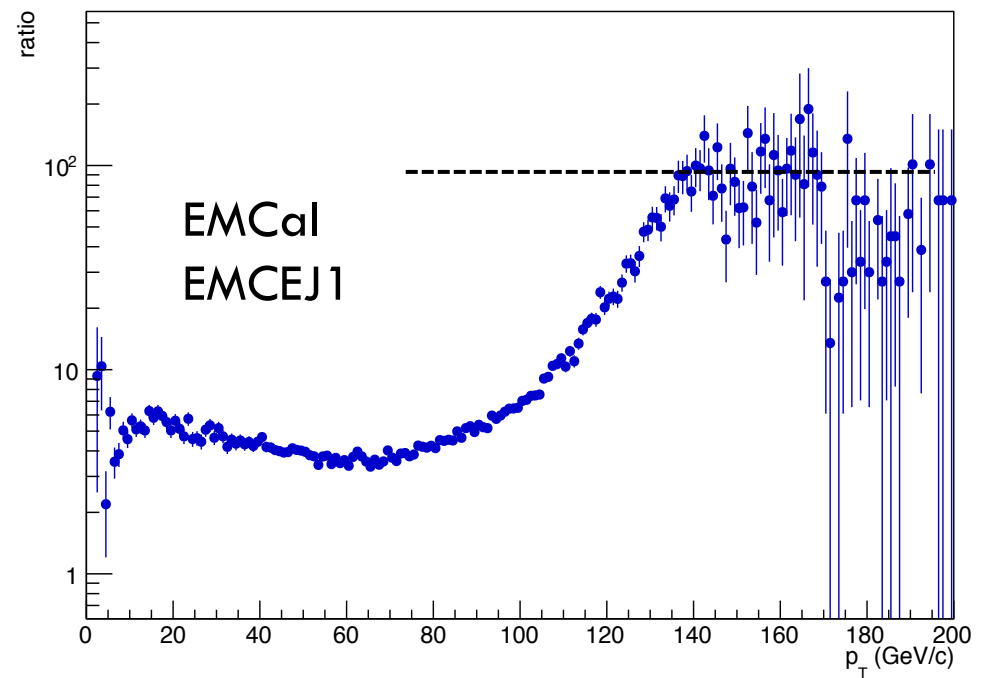


Jet Turn-On, $R=0.4$, 0-10%

Norm_JetPt_R040_TriggerTurnOnCurve_EMCaI_Cent0_EMCEG1

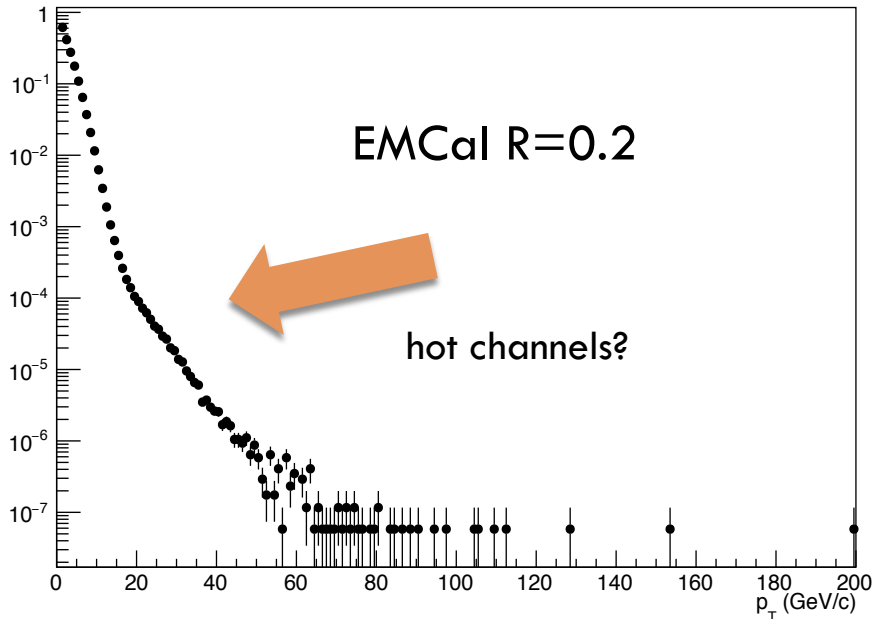


Norm_JetPt_R040_TriggerTurnOnCurve_EMCaI_Cent0_EMCEJ1

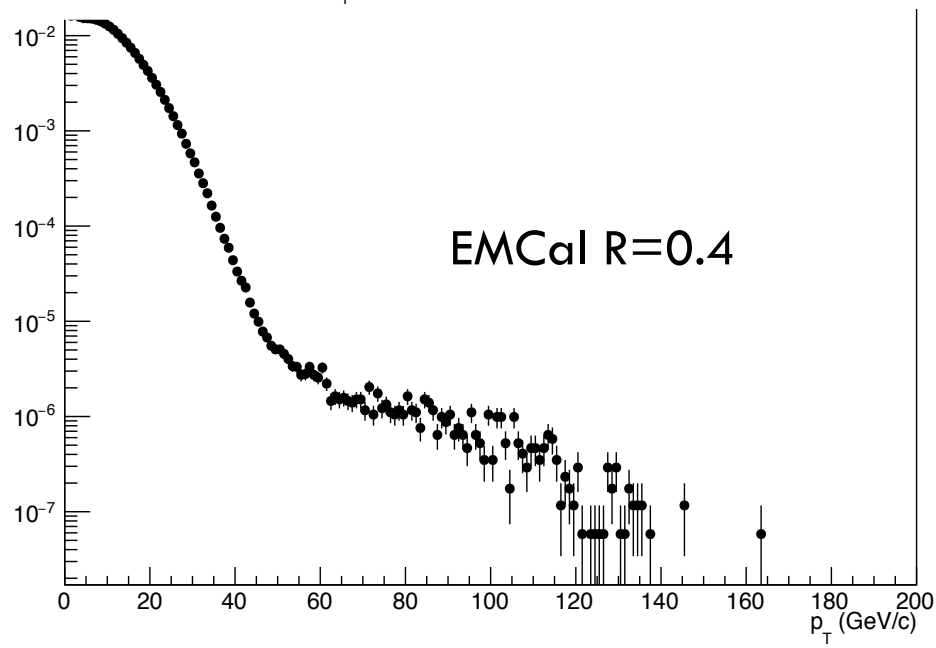
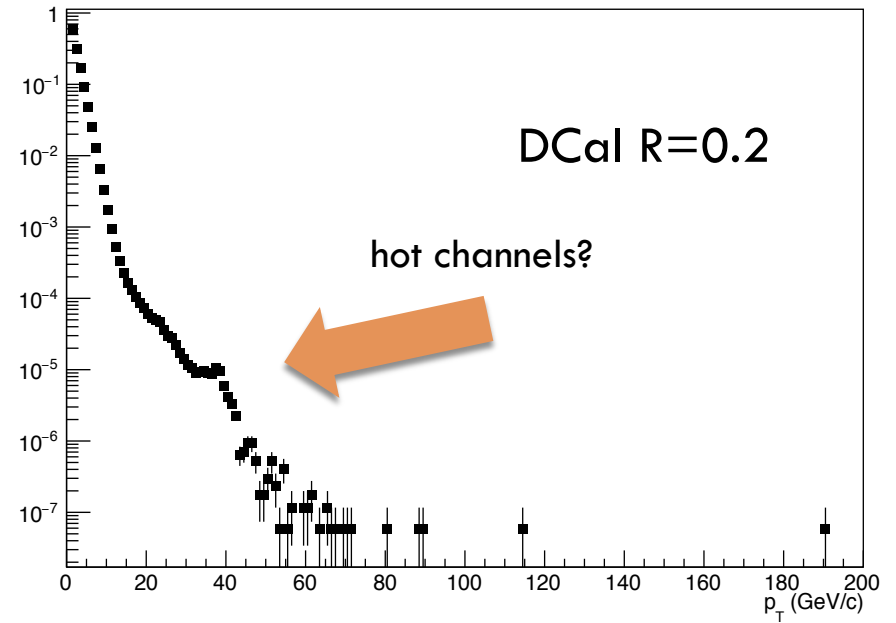


Jet Spectra, Min Bias, 30-50%

Norm_JetPt_R020_EMCaI_Cent2_INT7

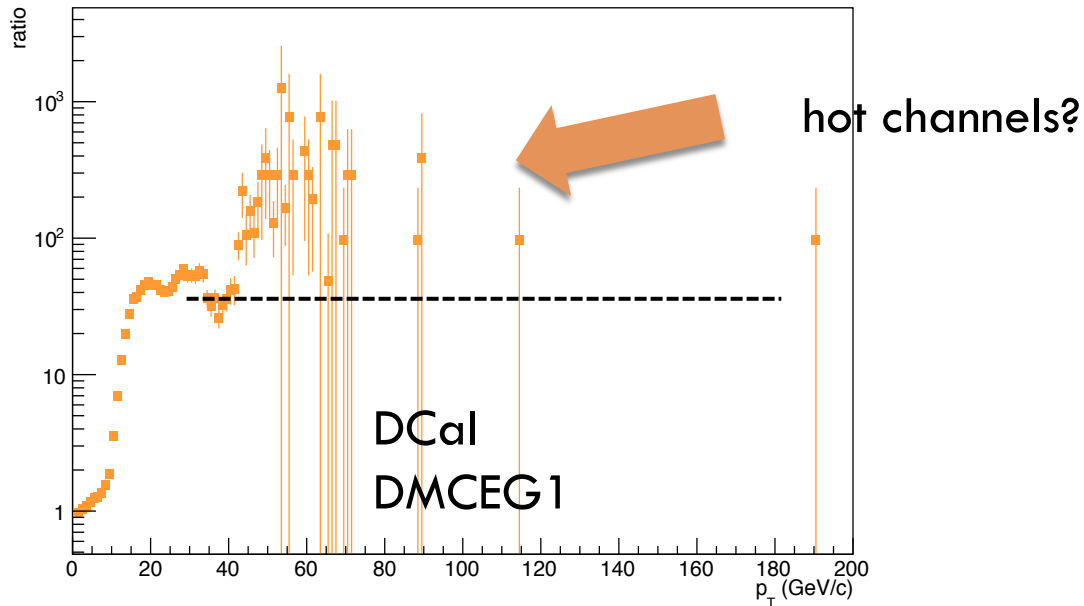


Norm_JetPt_R020_DCaI_Cent2_INT7

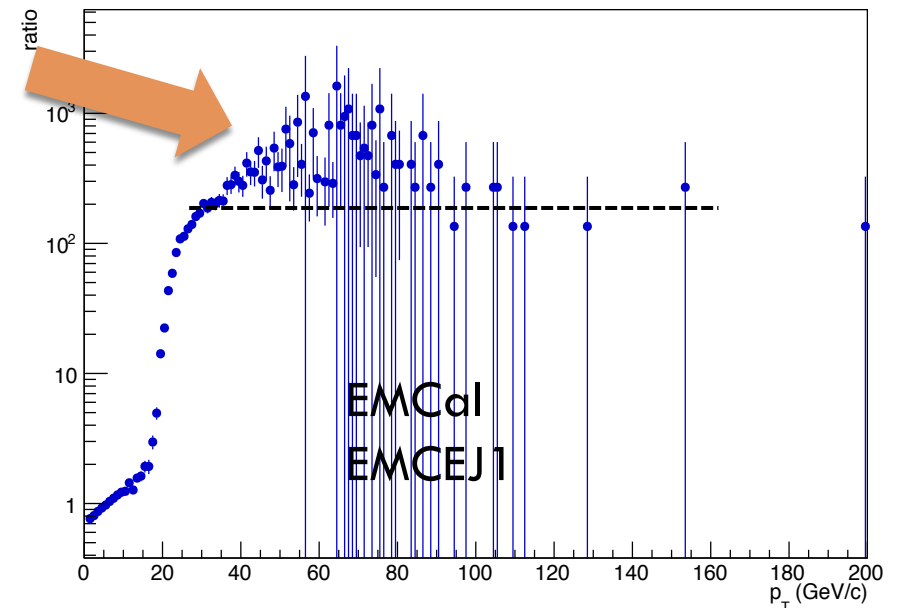
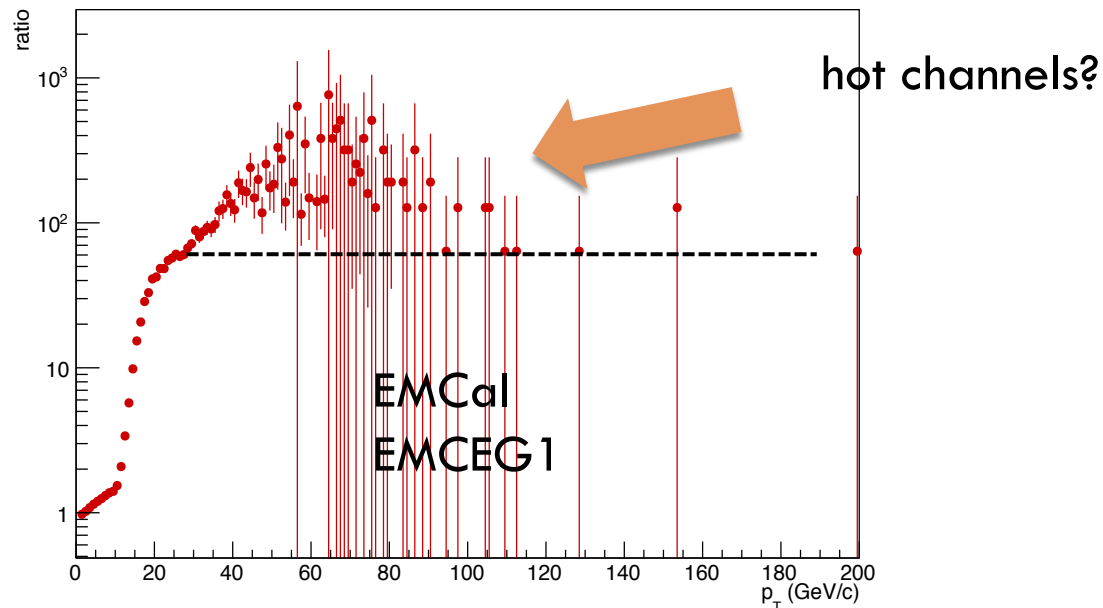
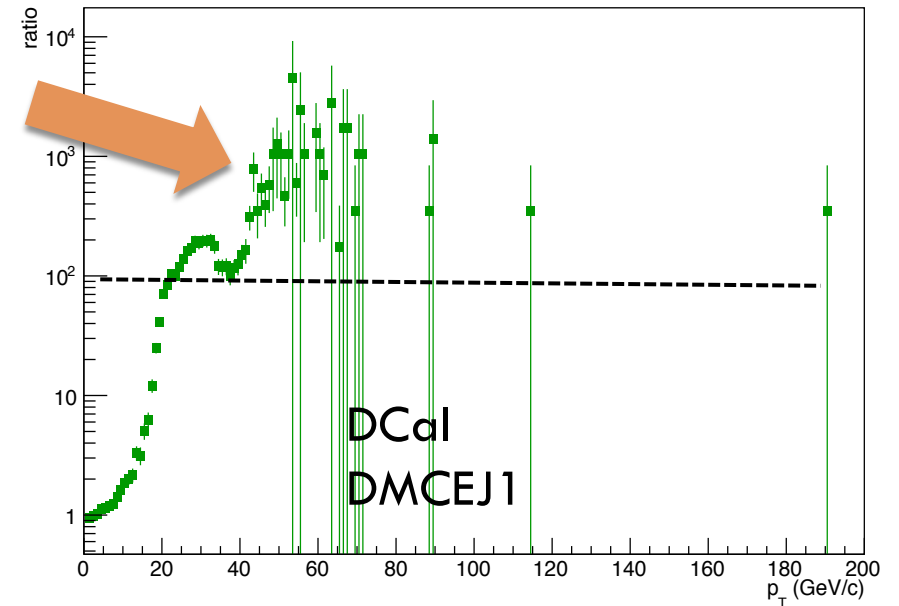


Jet Turn-On, 30-50%, $R=0.2$

Norm_JetPt_R020_TriggerTurnOnCurve_DCal_Cent2_DMCEG1

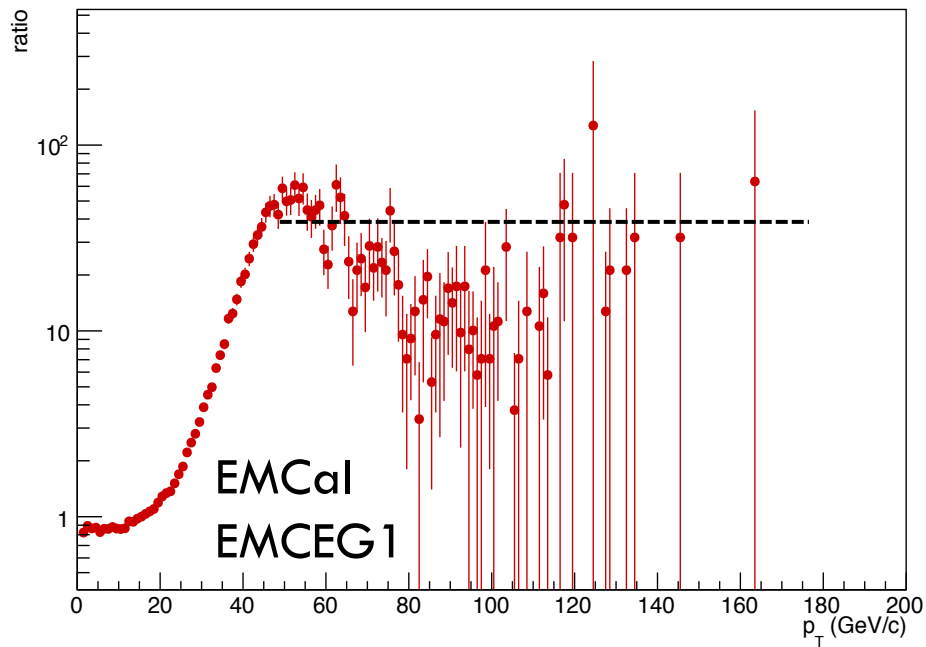


Norm_JetPt_R020_TriggerTurnOnCurve_DCal_Cent2_DMCEJ1



Jet Turn-On, 30-50%, $R=0.4$

Norm_JetPt_R040_TriggerTurnOnCurve_EMCal_Cent2_EMCEG1



Norm_JetPt_R040_TriggerTurnOnCurve_EMCal_Cent2_EMCEJ1

