



# CNNs FOR ELECTRON IDENTIFICATION

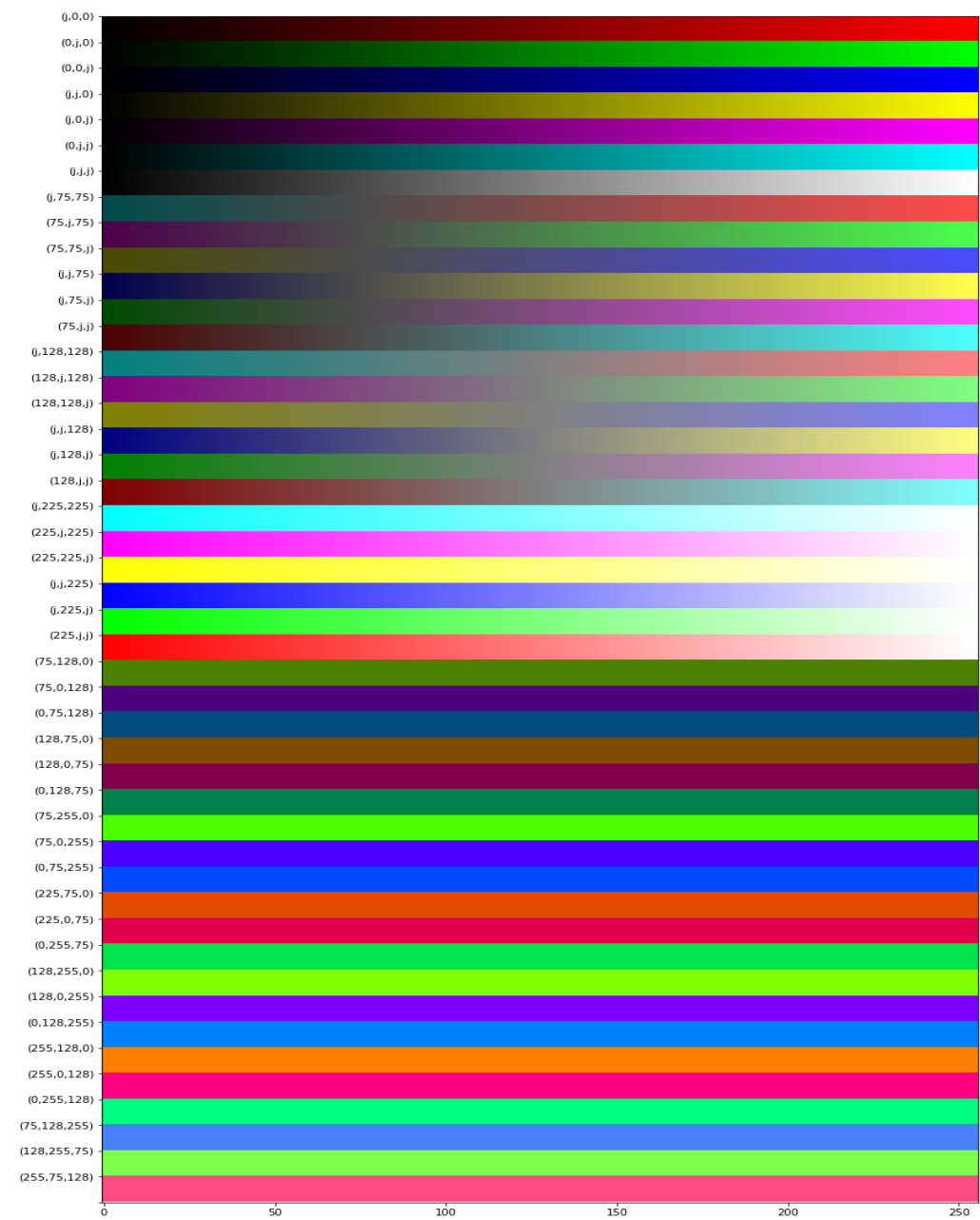
April 22, 2020

**Viraj Bagal**  
Angira Rastogi, Sourabh Dube, Arun Thallapil

# AIM AND CONTENT

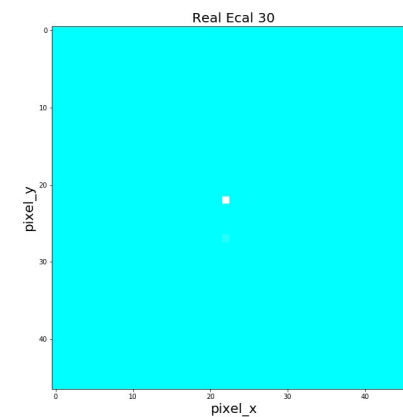
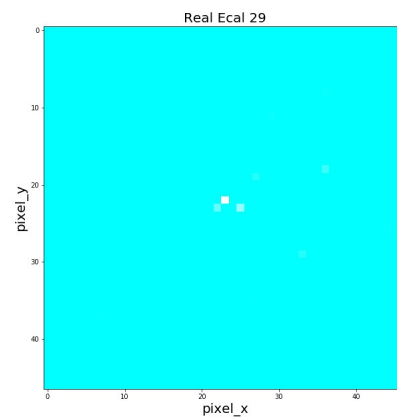
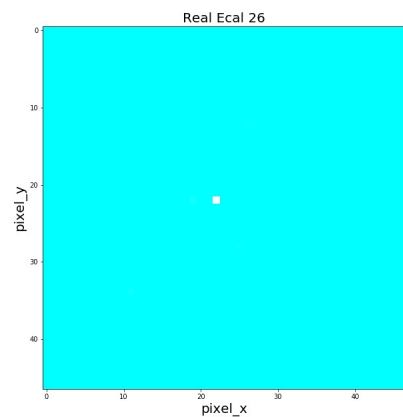
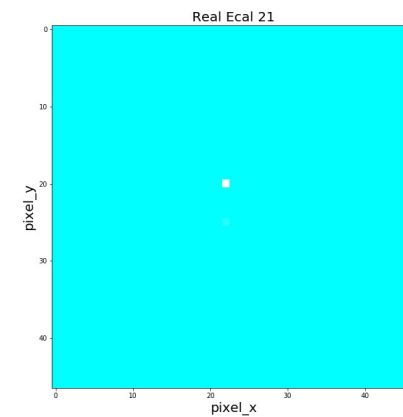
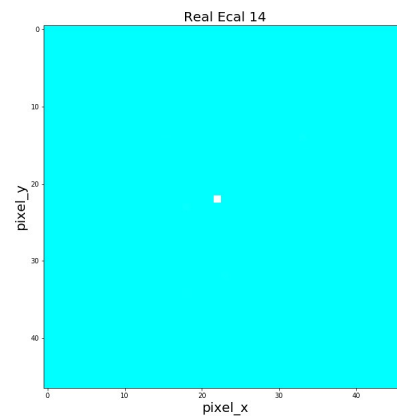
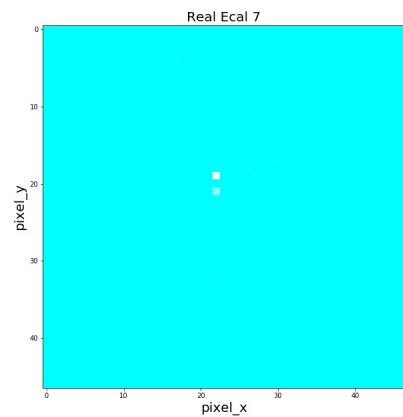
- **Aim:** To find good combination of background pixel intensities for visualization of Calorimeter deposit images.
- **Content:**
  - RBG Color Code Plot
  - Real & Fake Electron Ecal Images with different uniform background pixel intensities.
  - Real & Fake Electron Hcal Images with different uniform background pixel intensities.

# RGB COLOR CODE



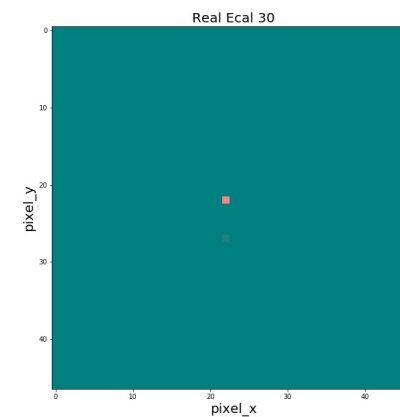
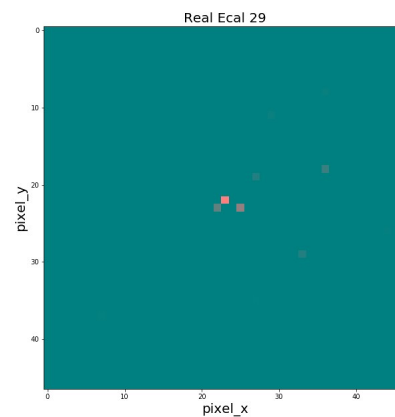
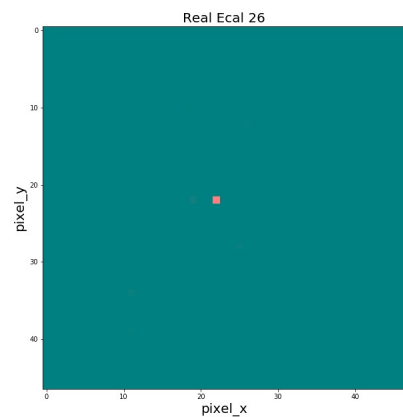
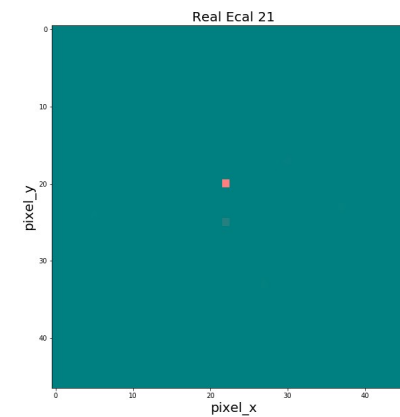
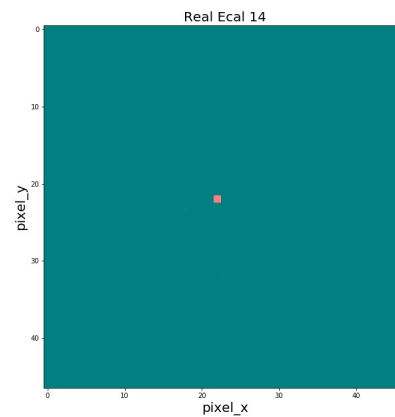
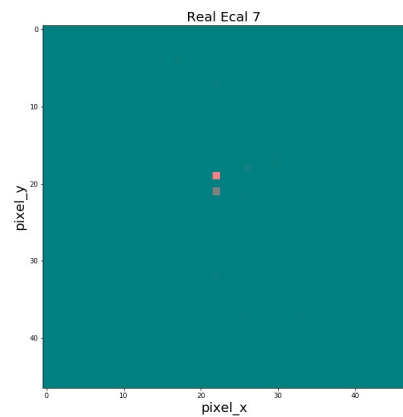
# REAL ELECTRON ECAL IMAGES

G=225, B=255, R=0 except at entries  
Max Normalization Used



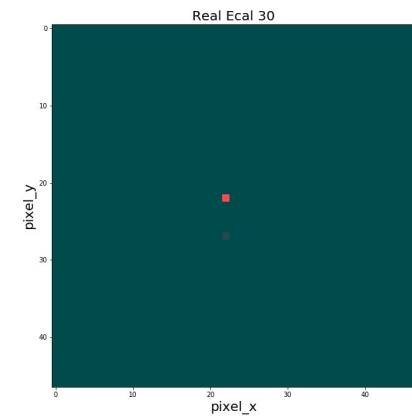
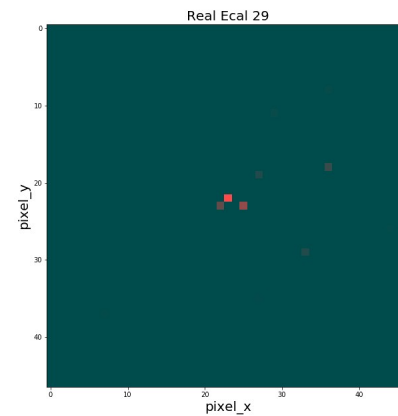
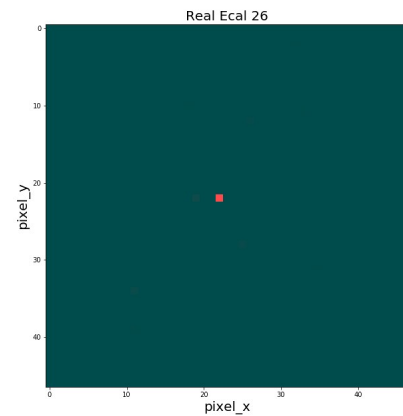
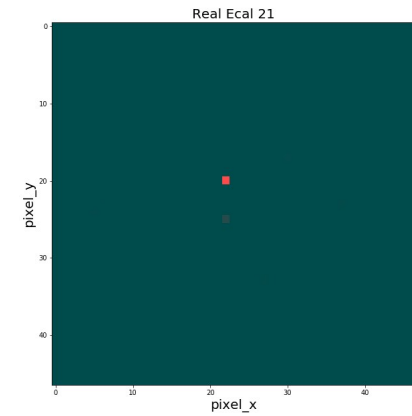
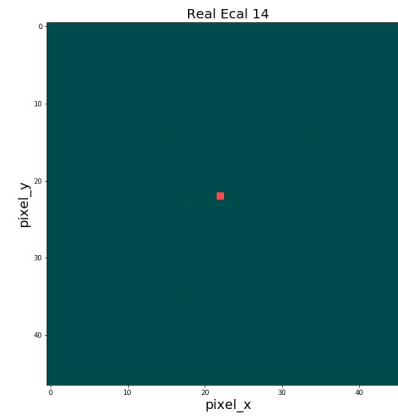
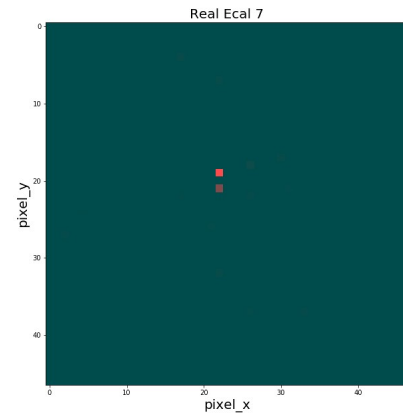
# REAL ELECTRON ECAL IMAGES

G=128, B=128, R=0 except at entries  
Max Normalization Used



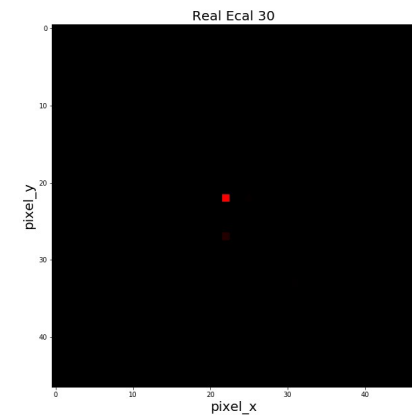
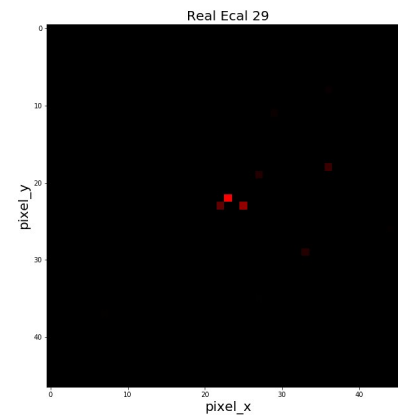
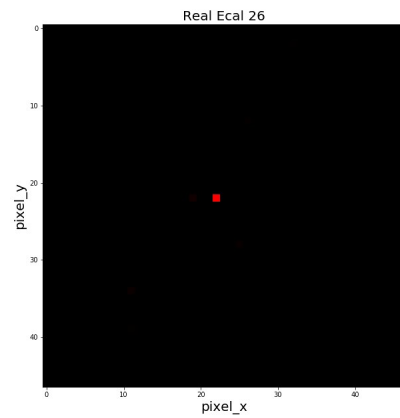
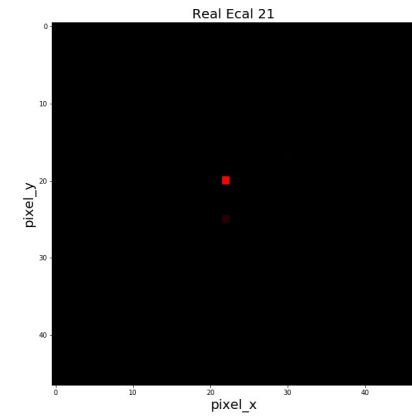
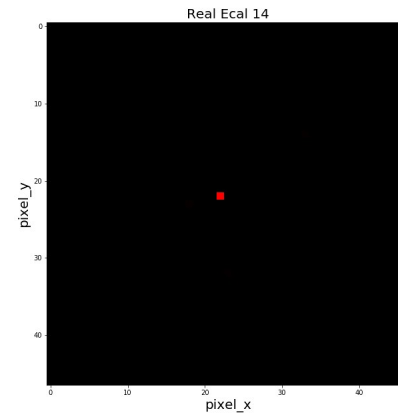
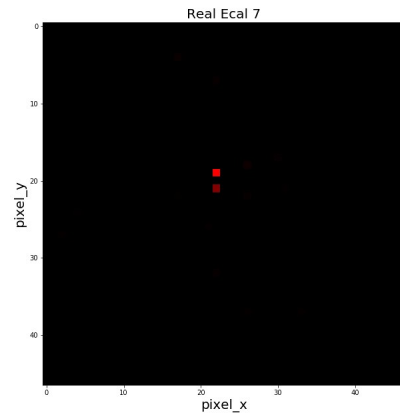
# REAL ELECTRON ECAL IMAGES

G=75, B=75, R=0 except at entries  
Max Normalization Used



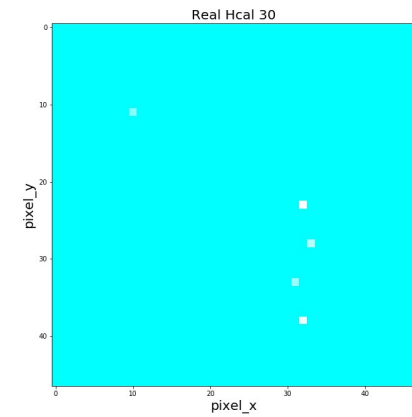
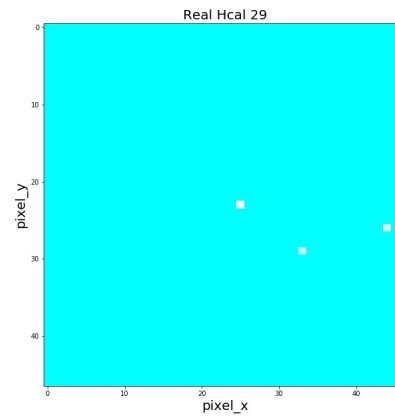
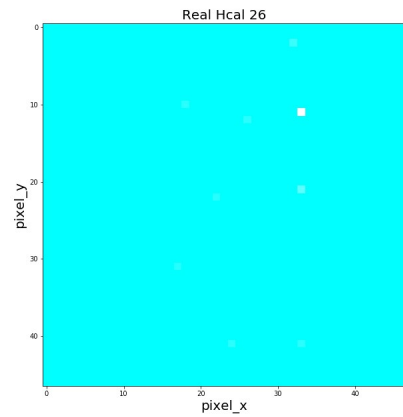
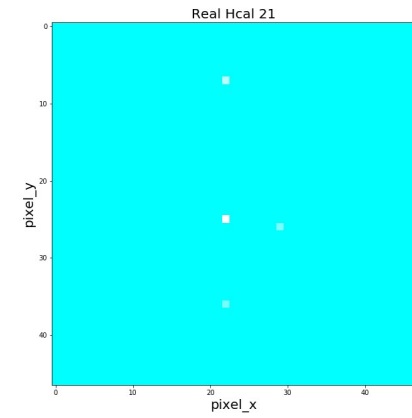
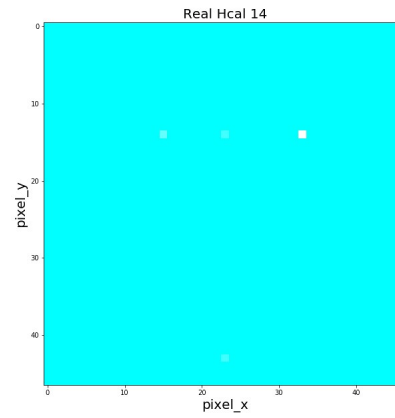
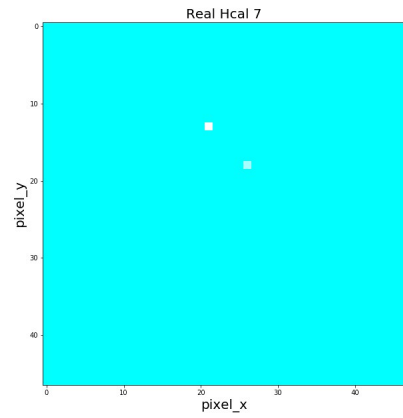
# REAL ELECTRON ECAL IMAGES

G=0, B=0, R=0 except at entries  
Max Normalization Used



# REAL ELECTRON HCAL IMAGES

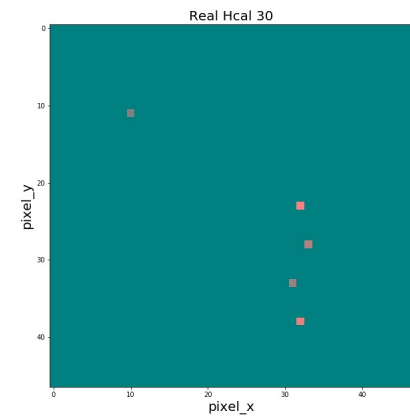
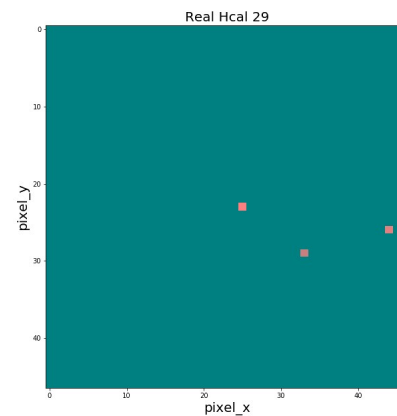
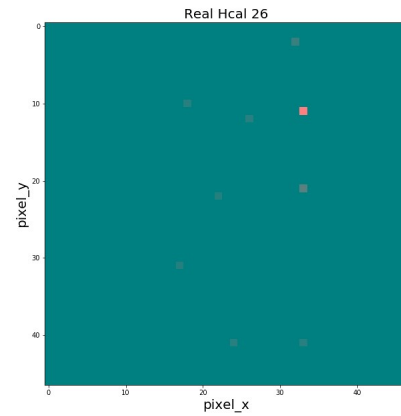
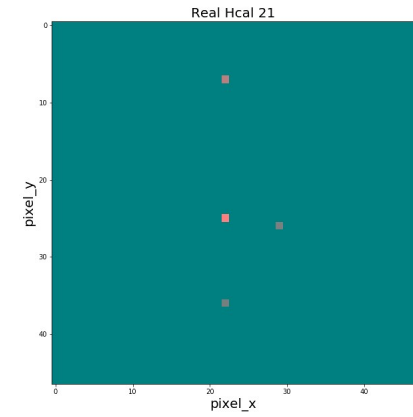
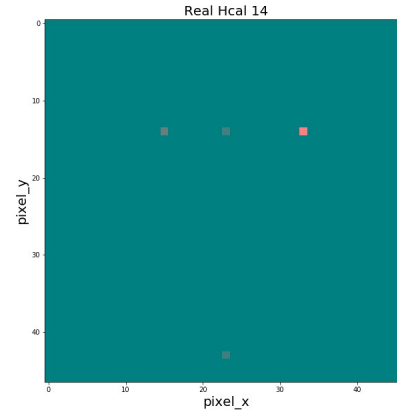
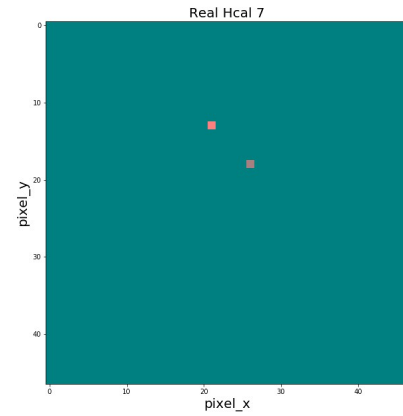
G=255, B=255, R=0 except at entries  
Max Normalization Used





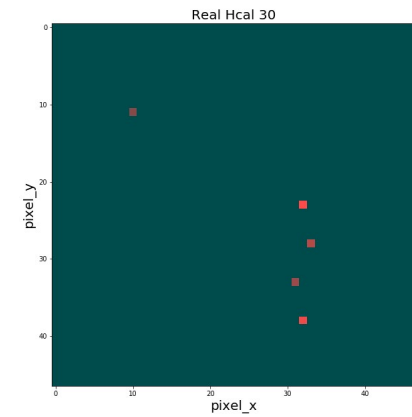
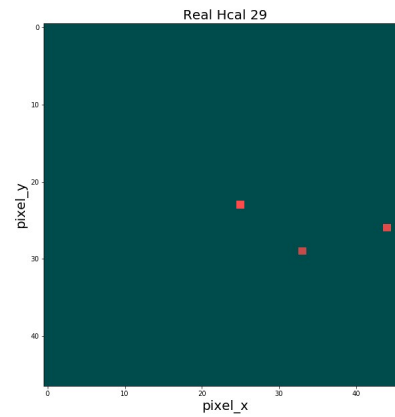
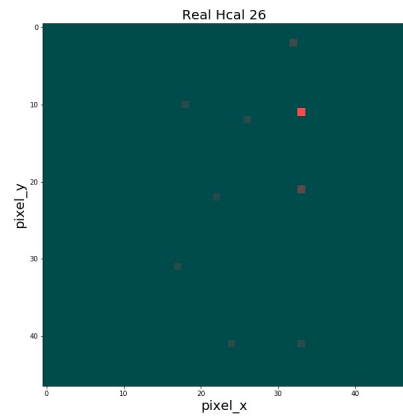
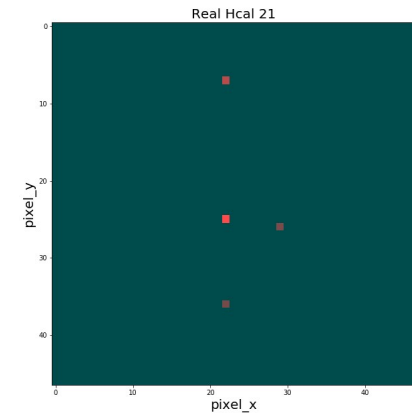
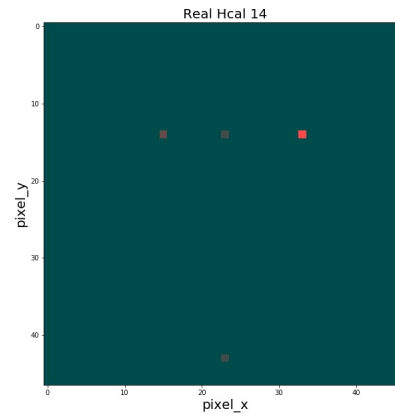
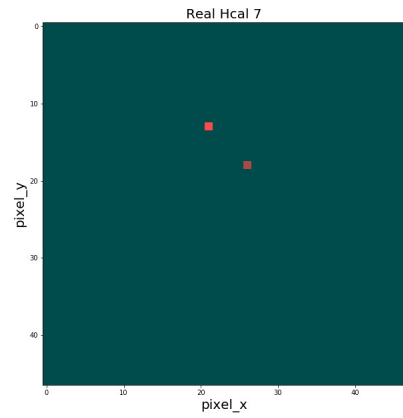
# REAL ELECTRON HCAL IMAGES

G=128, B=128, R=0 except at entries  
Max Normalization Used



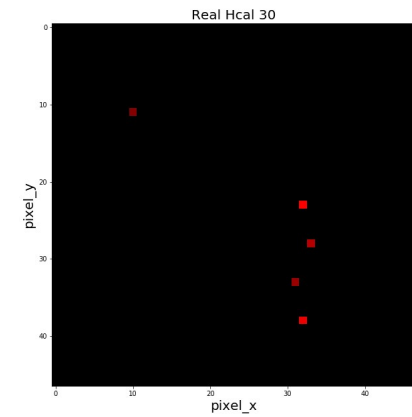
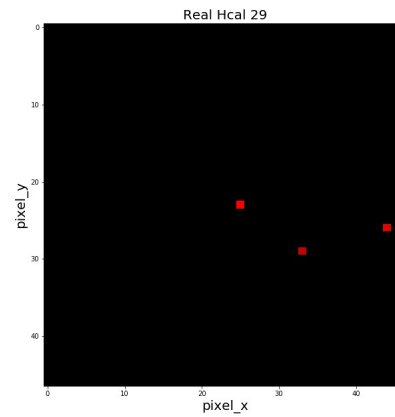
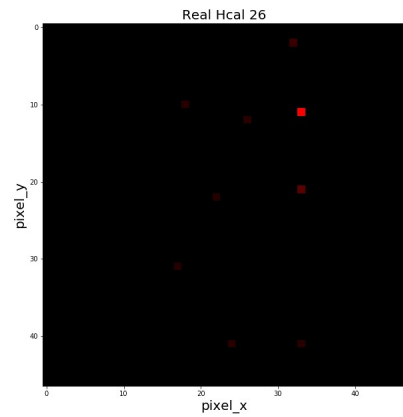
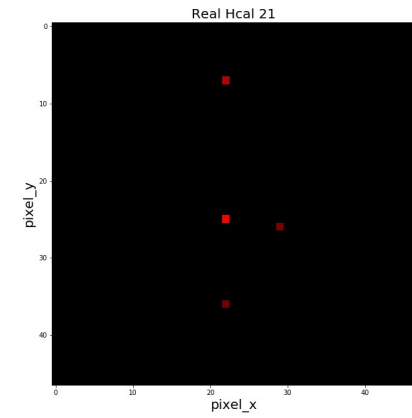
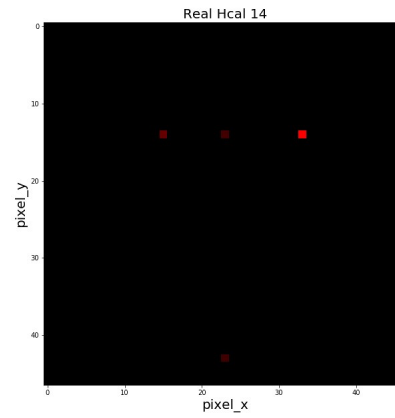
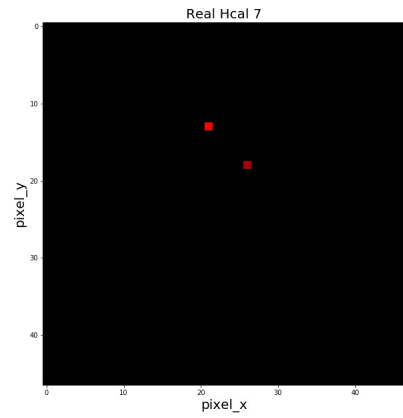
# REAL ELECTRON HCAL IMAGES

G=75, B=75, R=0 except at entries  
Max Normalization Used



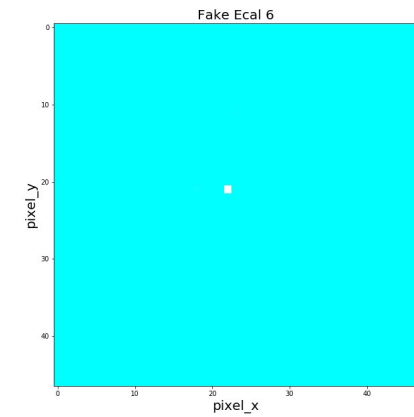
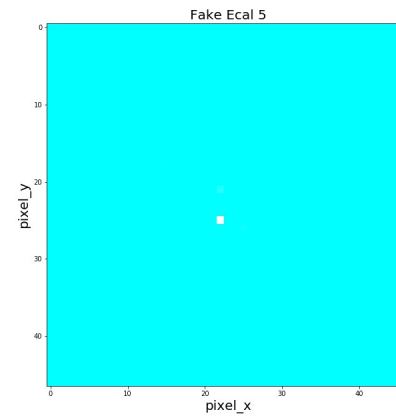
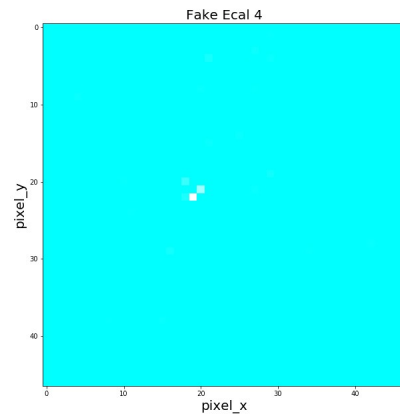
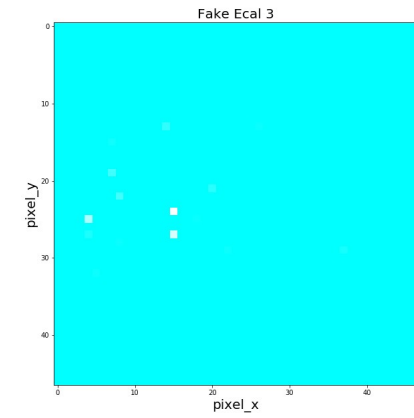
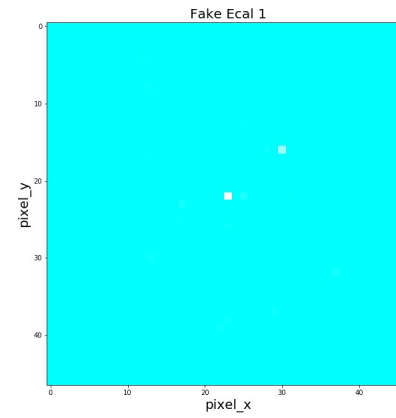
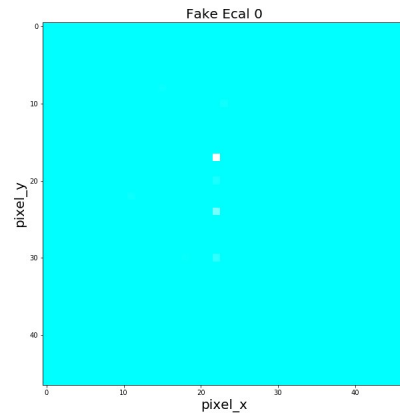
# REAL ELECTRON HCAL IMAGES

G=0, B=0, R=0 except at entries  
Max Normalization Used



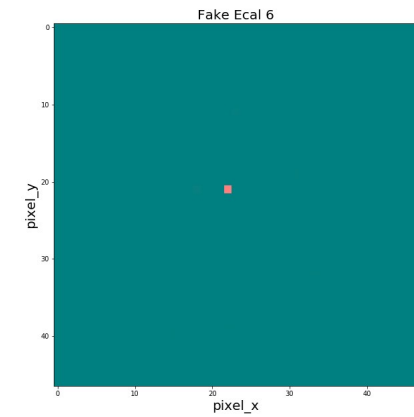
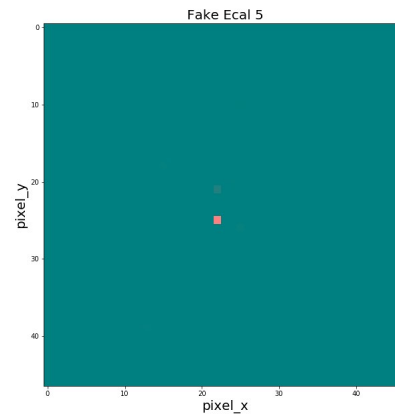
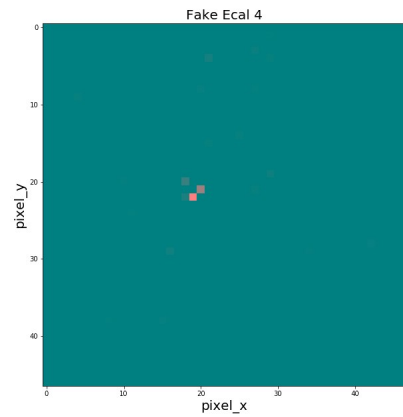
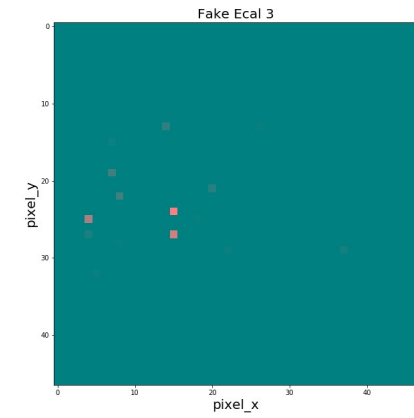
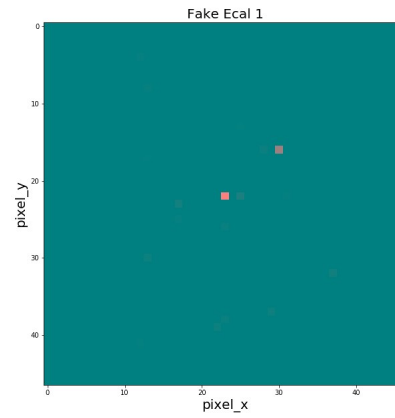
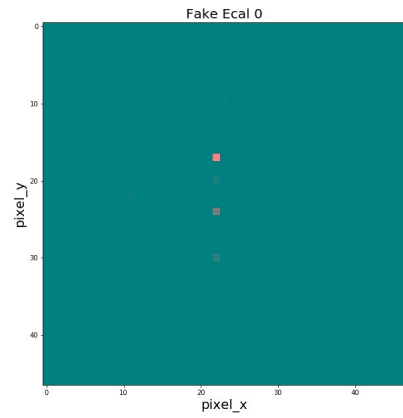
# FAKE ELECTRON ECAL IMAGES

G=225, B=225, R=0 except at entries  
Max Normalization Used



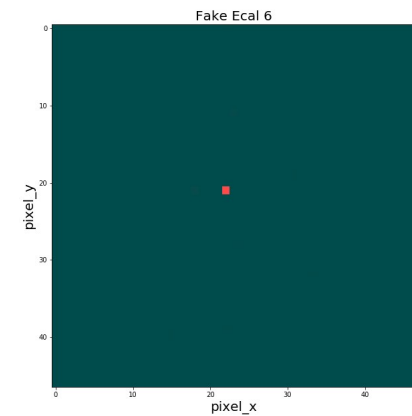
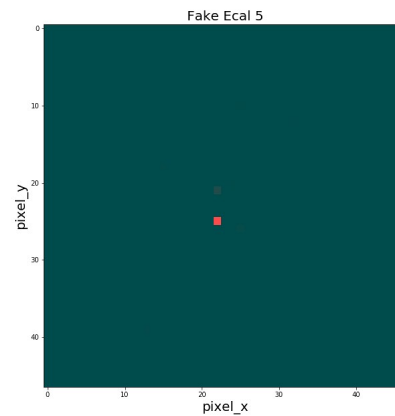
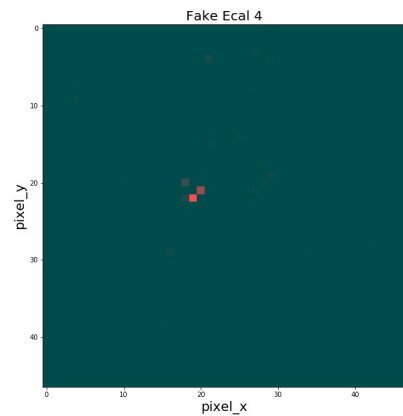
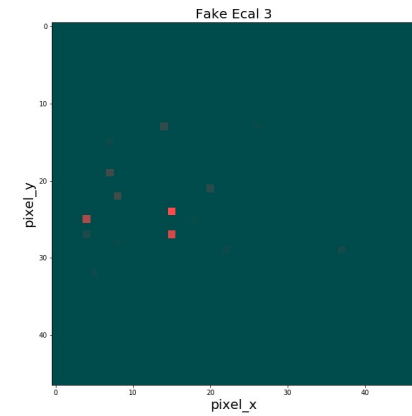
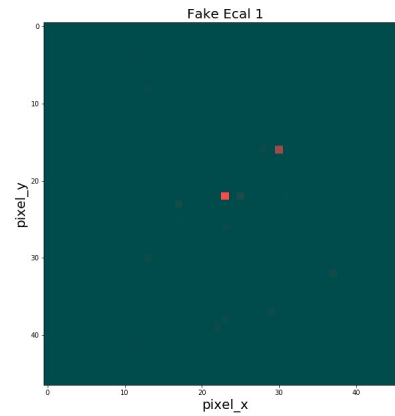
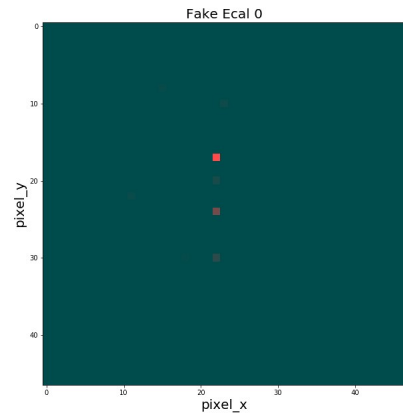
# FAKE ELECTRON ECAL IMAGES

G=128, B=128, R=0 except at entries  
Max Normalization Used



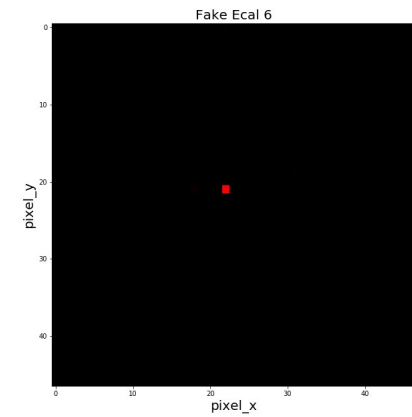
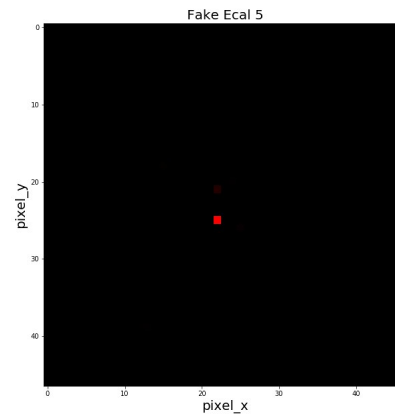
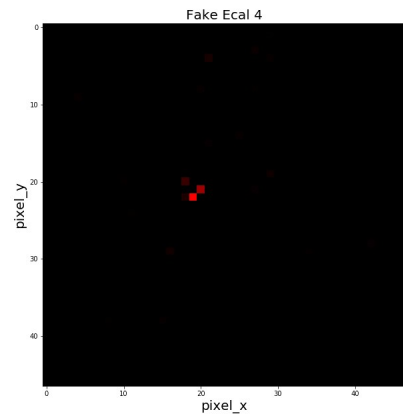
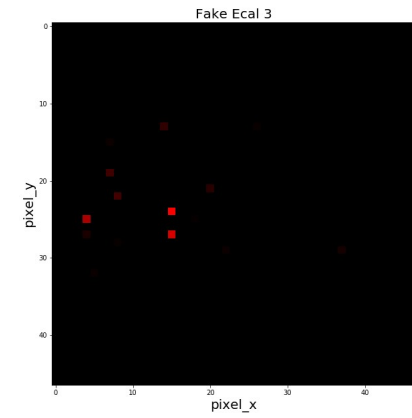
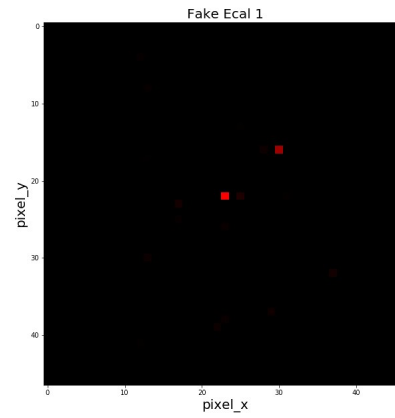
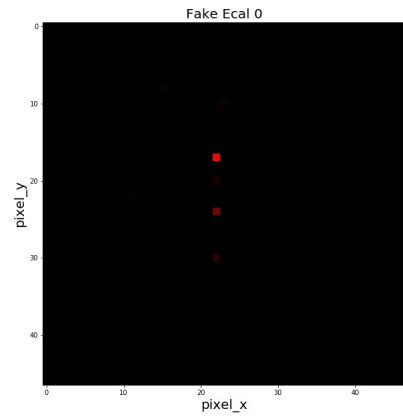
# FAKE ELECTRON ECAL IMAGES

G=75, B=75, R=0 except at entries  
Max Normalization Used



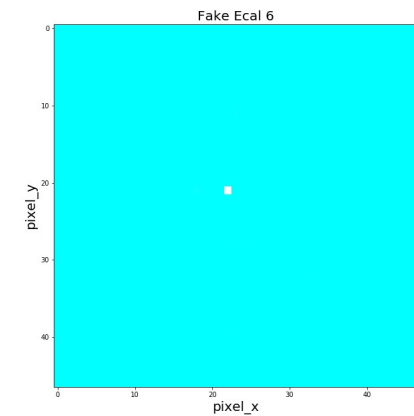
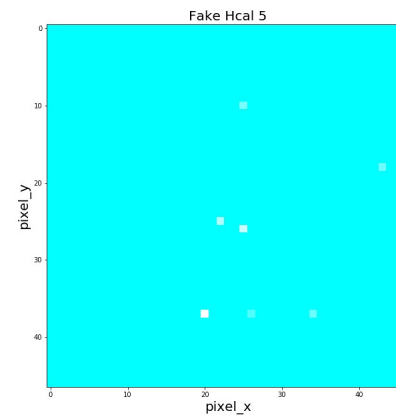
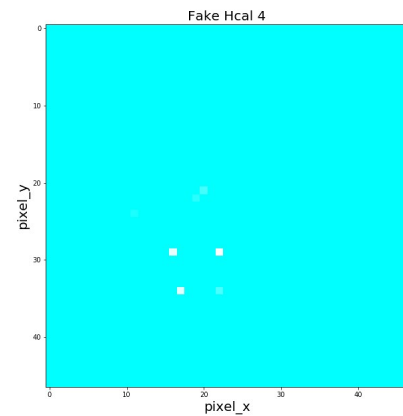
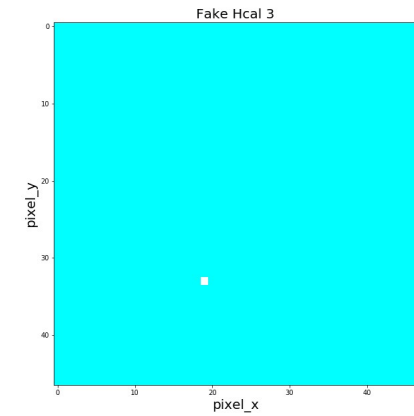
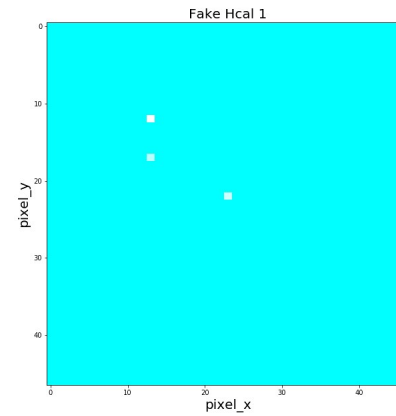
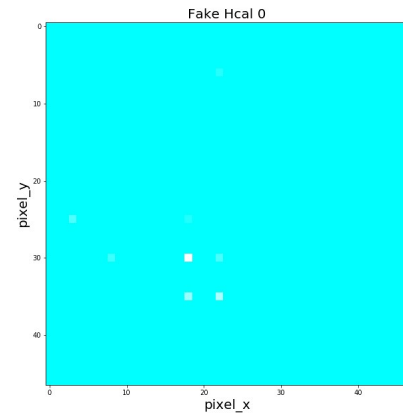
# FAKE ELECTRON ECAL IMAGES

G=0, B=0, R=0 except at entries  
Max Normalization Used



# FAKE ELECTRON HCAL IMAGES

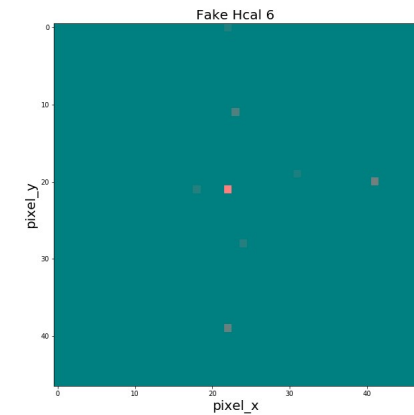
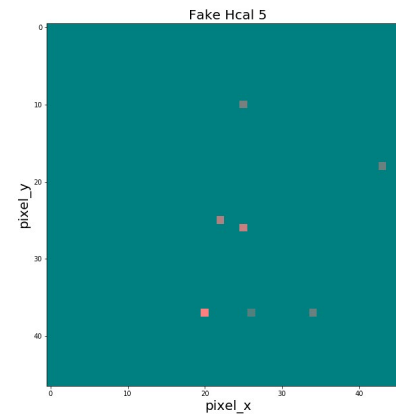
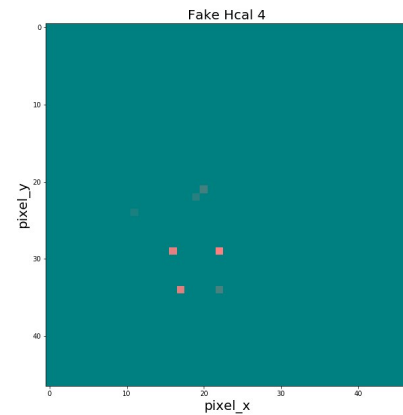
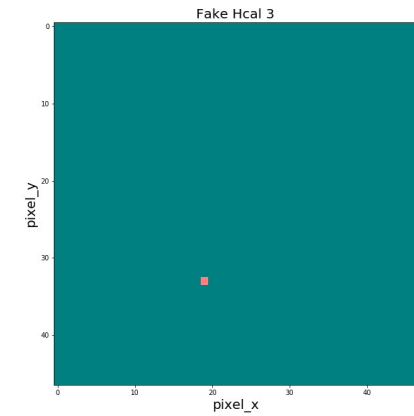
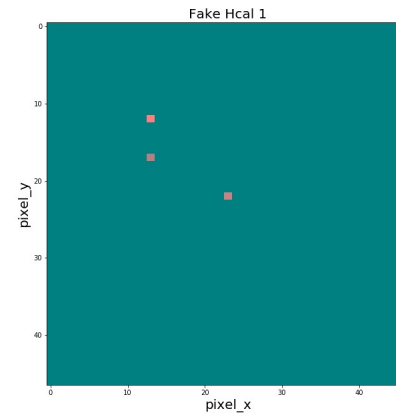
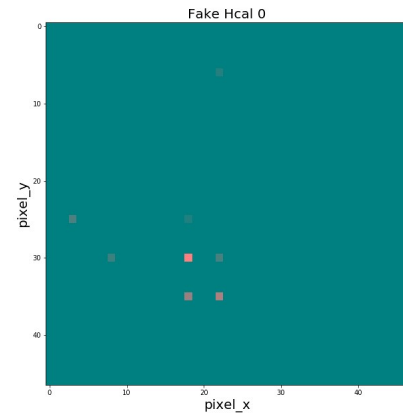
G=225, B=225, R=0 except at entries  
Max Normalization Used





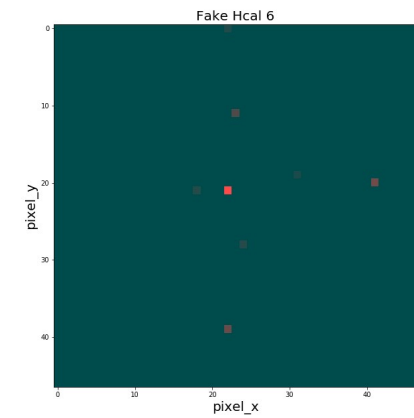
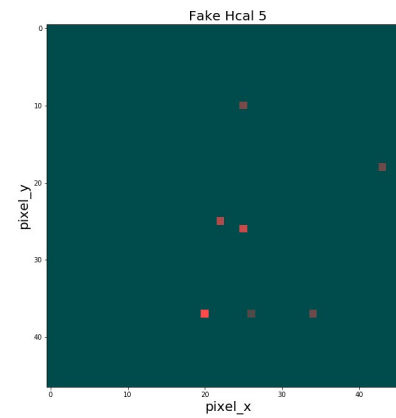
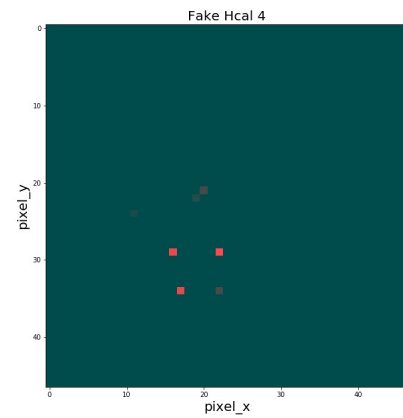
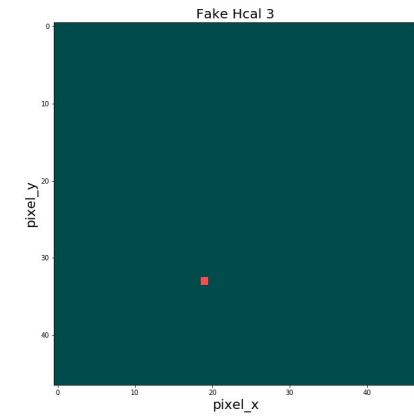
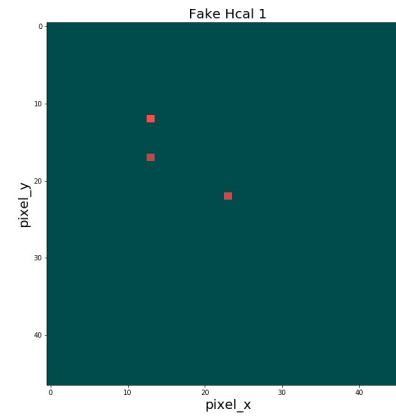
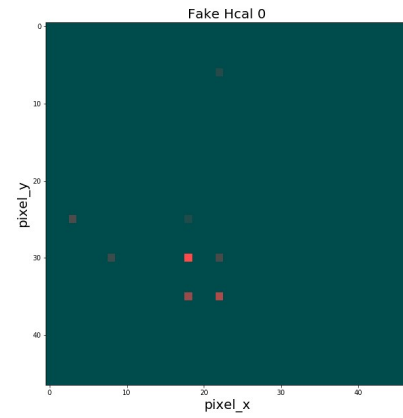
# FAKE ELECTRON HCAL IMAGES

G=128, B=128, R=0 except at entries  
Max Normalization Used



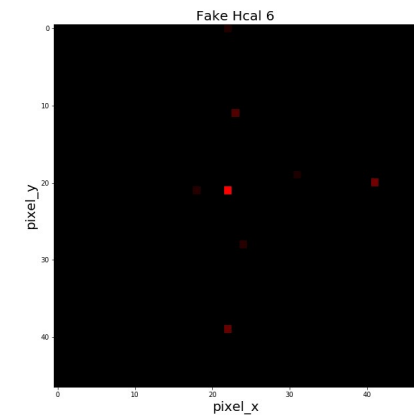
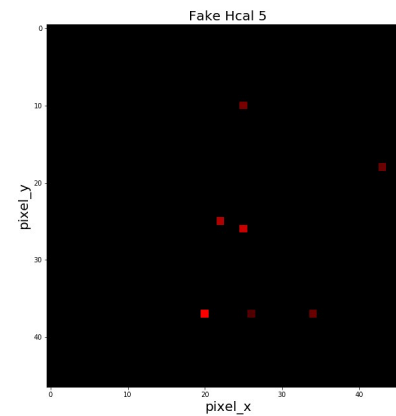
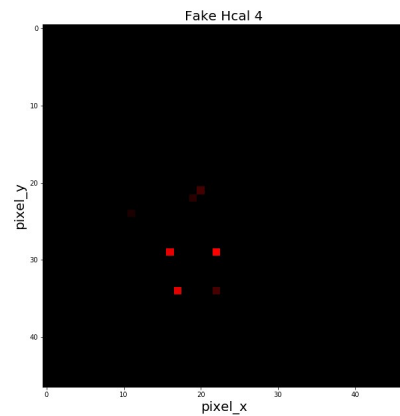
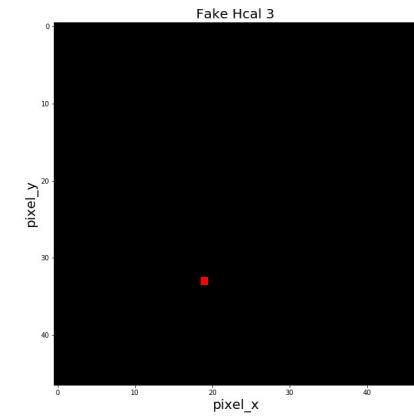
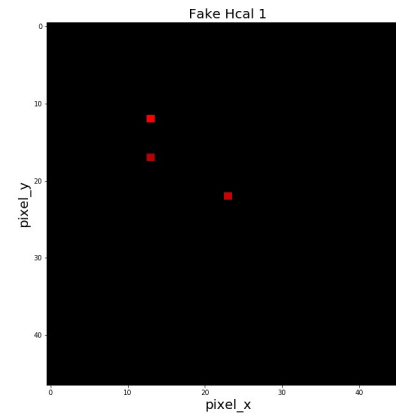
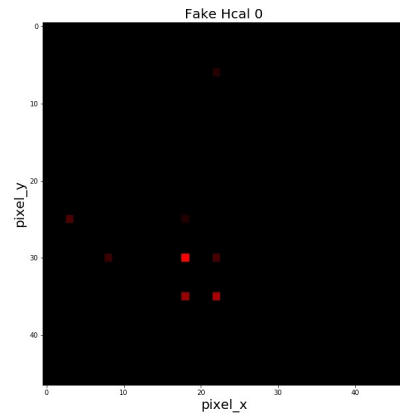
# FAKE ELECTRON HCAL IMAGES

G=75, B=75, R=0 except at entries  
Max Normalization Used



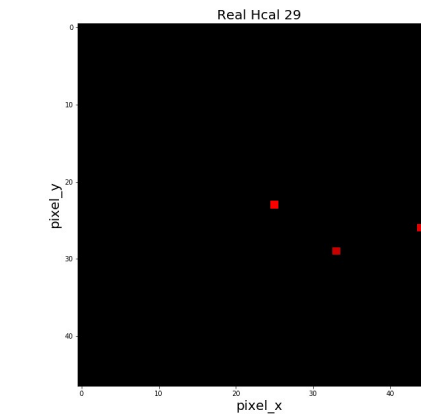
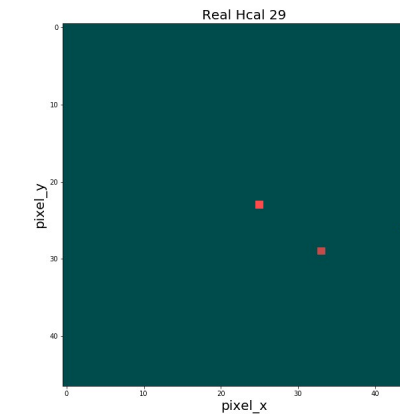
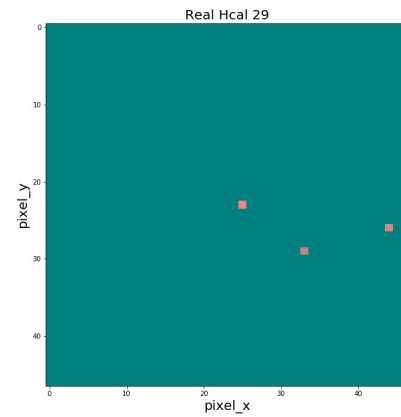
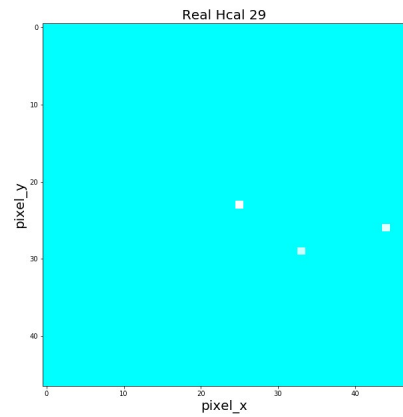
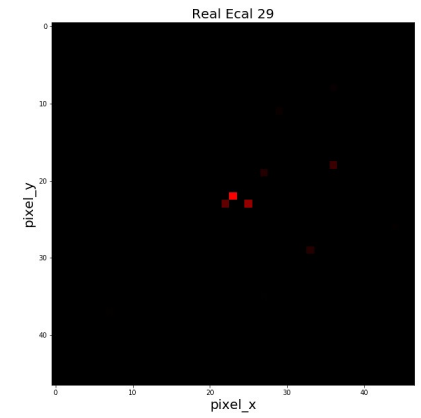
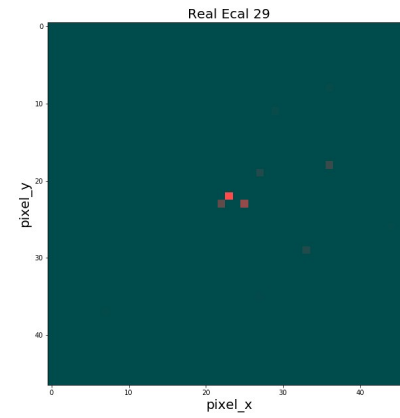
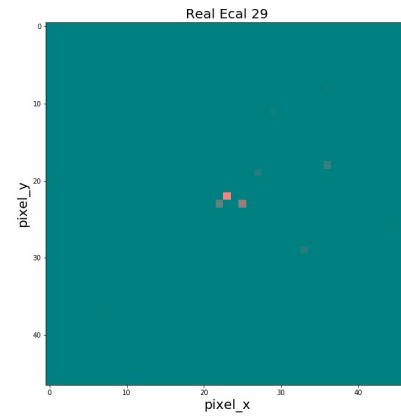
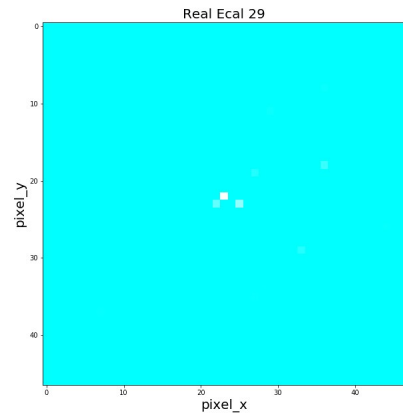
# FAKE ELECTRON HCAL IMAGES

G=0, B=0, R=0 except at entries  
Max Normalization Used



# REAL ELECTRON ECAL & HCAL IMAGES

Max Normalization Used



# FAKE ELECTRON ECAL & HCAL IMAGES

Max Normalization Used

