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## Determination of CMS Barrel Test Beam Calorimeter Reponse Correction to Pion Beams with Convolutional Neural Networks

*Wednesday, July 31, 2019 5:00 PM (20 minutes)*

We investigate modern machine learning techniques to derive calibration for the combined CMS electromagnetic and hadronic calorimeter system. We use the dataset from a 2006 CMS test beam to measure the calorimeter responses to pion beams of various energies. The performance of the network is evaluated by studying the linearity of calibrated responses. A convolutional neural network approach is used to train on a range of beam momenta from 2 to 200  $GeV/c$  and to apply the correction to the energy distribution.

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