

Development of U-Net Architecture for Dilepton Ring Detection

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The **High Acceptance DiElectron Spectrometer (HADES)** is a versatile magnetic spectrometer aimed at studying dielectron production in pion, proton and heavy-ion induced collisions. The conventional reconstruction algorithm for the HADES RICH is based upon the Hough Transform (HT) method for ring finding. This method fails to efficiently identify dileptons with small opening angles. The complexity of HT scales exponentially with number of parameters involved and given the expected 10 MHz trigger rate in CBM/FAIR, a faster algorithm will be necessary to accelerate online analysis. A preliminary U-Net architecture for ring detection has been developed and first results will be discussed.

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