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Alignment of the CMS muon system with tracks AYSEN TATARINOV, TAMU, CMS COLLABORATION — The CMS detector features a full tracking spectrometer for identifying and measuring the momenta of muons. Every muon passes through 18-44 layers, providing a highly redundant track capable of validating and improving the momentum measurement from the inner tracker. But like any tracking system, its performance depends on precise knowledge of the positions of the tracking elements relative to one another and relative to the central CMS silicon tracker. We present techniques to align the muon chambers and layers with high precision using tracks from cosmic-ray, beam halo muons and the collisions data. We measure the current precision of the alignment procedure with the existing data and quantify the expected alignment accuracy based on large datasets to be collected during 2011.

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