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A Technique for Charm and Beauty Separation via DCA Unfolding

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The PHENIX experiment at the Relativistic Heavy Ion Collider recently took data in p+p and Au+Au collisions with a new silicon vertex detector (VTX). This upgrade detector is capable of measuring the off-vertex decay of heavy flavor decay electrons via distance of closest approach (DCA). The resulting measured DCA distributions will be a convolution of the parent meson momenta, decay lifetimes, and yields, combined with detector irresolution and backgrounds. We will describe an algorithm to unfold the full set of DCA distributions as a function of p_{\perp} , thereby allowing improved extraction of the charm and beauty yields. The progress for applying this technique to the heavy ion collision VTX data set will also be shown.

Author: MCCUMBER, Michael (University of Colorado)

Presenter: MCCUMBER, Michael (University of Colorado)

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