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Neutral Profile & Momentum Confinement on MCX RYAN CLARY, RICHARD ELLIS, RAY ELTON, ADIL HASSAM, ROBERT LUNSFORD, SHEUNG WAH NG, CATALIN TEODORESCU, University of Maryland — H_α detectors employing photodiodes and interference filters have been employed by the Maryland Centrifugal eXperiment (MCX) to study ionization rates, characterize transitions between discharge modes, and estimate neutral hydrogen density with $2 \mu s$ time resolution. We are currently implementing a multi-chord array of these detectors to determine H_α emission at the midplane as a function of radius. These measurements will be compared to recent H_α emission profile measurements employing high resolution spectroscopy. Using approximate electron temperatures and average electron densities as well as Abel like inversion techniques, neutral density profiles will be determined and compared to existing theoretical models. The neutral profiles will be used to calculate volume averaged momentum confinement times due to ion neutral collisions and these will be compared with those directly measured from circuit analysis.

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