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H_α Emissions Diagnostic for the Maryland Centrifugal eXperiment RYAN CLARY, ANDREW CASE, RICHARD ELLIS, ADIL HASSAM, ROBERT LUNSFORD, CATALIN TEODORESCU, University of Maryland — H_α detectors have been designed and constructed for the Maryland Centrifugal eXperiment (MCX) using high-speed photodiodes. Currently, light is collected from various positions along the axis in nominally radial directions in order to obtain general diagnostic information about MCX. We present a basic description of the instrument design and typical data traces in the parameter space of the experiment. The axial core in MCX is charged to a high voltage with the high voltage feeds placed asymmetrically at one axial end. In addition, MCX exhibits two modes of operation: an “ordinary” mode (O-mode) and a “high rotation” mode (HR-mode). In view of this, we will present observations related to axial symmetry, general H_α emission levels in HR-mode vs. O-mode, & correlation between H_α emission characteristics and shot mode-types. We also propose a possible design for a multi-cord instrument array that will aid in determining a radial neutral density profile.

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