Abstract Submitted
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Controllable optical emission spectroscopy plasma diagnostic system[1] P.L. STEPHAN THAMBAN, University of Texas at Dallas, JIMMY HOSCH, Verity Instruments, DANIEL SELF, MATTHEW GOECKNER, University of Texas at Dallas — Optical emission spectroscopy (OES) does not always produce signals useful for plasma diagnostics, including endpoint detection. Fluctuations in plasma power or deposition on walls, cause the OES signal to drift. To overcome such shortcomings, we have developed a method and tool that allows independent control of both electron energy (E_e) and density (n_e). A description of the method and resulting tool will be presented. We will show how we can alter the operation of the system to change just E_e but not n_e. Thus, we can preferentially probe specific transitions of a given species, or across multiple species. Such ability allows one to probe specific species for use in endpoint detection. We will also show that we can correlate electrical measurements to OES data. Here, the OES signal can be directly correlated to the anode current, a measure of n_e. Finally, we will show how this system can be adapted for use on numerous plasma systems as either an endpoint tool or an advanced diagnostic, allowing the collection of data that has not been possible to date.

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