

Abstract Submitted  
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**Downstream electron beam exciter diagnostic with energy dependent cross section responses for process tool applications**<sup>1</sup> P.L. STEPHAN THAMBAN, GABRIEL PADRON WELLS, The University of Texas at Dallas, JIMMY HOSCH, Verity Instruments Incorporated, MATTHEW GOECKNER, The University of Texas at Dallas — Optical emission spectroscopy (OES) still remains as the primary diagnostic in plasma process tools in micro-electronics industry. With newer plasma processes and detection demands in low open area etches, process monitoring with direct optical signals is severely limited. Here we present a diagnostic method that realizes optical signals due to an electron beam from an inductively coupled plasma. Distinct merits such as energy dependent optical emission cross section responses and stable operability in polymerizing / corrosive etch environments will be presented. Electron impact optical cross section responses of transitions in fluorocarbon, oxygen and inert gas chemistries will be shown. Such controllability, in the context of species density measurement will be discussed.

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P.L. Stephan Thamban  
The University of Texas at Dallas

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