

Abstract Submitted  
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**Active Control of the Secondary Electron Emission Coefficient: A New Plasma Control Paradigm?**<sup>1</sup> DAVID URRABAZO, C. LIU, L. OVERZET, The University of Texas at Dallas, L. RAJA, D. BREDEN, H. HARISWARAN, P.K. PANEERCHELVAM, The University of Texas at Austin — Many discharges, from low to high pressure, are strongly dependent upon Secondary Electron Emission (SEE) at a cathode surface. As a result, the SEE process is generally thought to play a key role in determining plasma properties. Great efforts have been expended to control SEE from surfaces by controlling the electron work function energy through surface chemistry; but in the end, all of the standard devices suffer from one large detriment: Once the emitter/cathode is built, the magnitude of the SEE Coefficient is set. Control over SEE is possible only through changing the temperature of the surface. Recently published data, however, points to the possibility of controlling the SEE Coefficient of some surfaces in real time through the use of surface embedded electronic devices. We are just beginning an investigation of exactly this. To the best of our knowledge, no such study has ever been attempted even though it could lead to the formation of whole new classes of plasma based devices and systems. In this poster, we will describe the background physics/chemistry of the problem, the beginning of our modeling and experiments as well as the data we have obtained so far.

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