

Abstract Submitted  
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**Application of Spectroscopic Measurements to Electrical Propulsion** MURAT CELIK, OLEG BATISHCHEV, MANUEL MARTINEZ-SANCHEZ, MIT, 77 Massachusetts Avenue, Cambridge, MA 02139 — Many plasma propulsion systems do not allow direct measurement of important operational conditions such as electron temperature in the discharge region and rate of wall erosion using common invasive diagnostics. To overcome these limitations we are trying to deploy visual spectrum line emission measurements using a portable optical system with  $\sim 0.01\text{-}0.02$  Å spectral resolution in the broad UV-VIS to VIS-IR range. Experimental results for Hall Effect and RF-Driven Thrusters will be presented. Those will include line spectra for argon, xenon and nitrogen gases, and also impurities. We will discuss measurements of neutral and ionic lines intensity, broadening and shift, and possibility of plasma parameters derivation using relevant collisional-radiative models of the gas discharges.

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