

Abstract Submitted  
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**A characterization of atmospheric pressure plasma jets (APPJs) through a spatio-temporal map of the APPJ's optical emission spectra<sup>1</sup>**

JAMES KAPALDO, SYLWIA PTASINSKA, Univ of Notre Dame — APPJs have become increasingly important in the past years in medical, science, and industry. However, there still remains a largely unsolved problem of characterizing APPJs to determine the quantity of species they deliver; the type of atomic, molecular, and radical species they deliver, both charged and neutral; as well as the energy of the species they deliver. In this paper, we will present our work on the characterization of the type of charged species delivered by our APPJ through a spacial and temporal map of the APPJ's optical emission spectra. This spatial-temporal emission spectra enables us to track how the relative abundance of individual emitting species changes as a function of distance from the jets central axis and as a function of time (distance from the APPJ's orifice). Using a helium working gas, we tested our method of characterization by measuring the relative abundances of different helium, nitrogen, and oxygen emitting species under three different conditions: using a shielding gas of oxygen, using a shielding gas of nitrogen, and using no shielding gas at all—just the He jet directly into the atmosphere. The results of this study will be presented.

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