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Preliminary Data of a Laser-Induced Fluorescence Diagnostic of Electric Field[1] CHRISTOPHER DUROT, JENNY SMITH, JOHN FOSTER, Univ of Michigan - Ann Arbor — The local electric field is a key parameter in gas chemistry modeling but is not always well known or simple to calculate. Measurements of the electric field generated under conditions of interest could help to inform and validate plasma chemistry models. The University of Michigan is developing a laser-induced fluorescence dip (LIF-dip) spectroscopy system in support of NRL gas chemistry studies. The LIF-dip technique uses Rydberg states as part of the level scheme to sensitively detect electric field magnitude. We present preliminary LIF measurements to confirm that our custom plasma source produces the excited metastable population necessary for the energy level scheme and explore relevant energy level lifetime and collisional quenching.

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