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**Remote Detection of Chemicals Using Femto-Second Laser Induced Breakdown Spectroscopy**[1] TARIQ AHMIDO, Howard University, ANTONIO TING, Plasma Physics Division, Naval Research Laboratory, PRABHAKAR MISRA, Howard University — Laser-Induced Breakdown Spectroscopy (LIBS) is being used for the analysis of surface contaminant pollutants and chemical compounds by focusing a high power femtosecond laser beam onto a contaminated surface. A femtosecond laser has the broad bandwidth that allows pulse compression by group velocity dispersion in air to achieve high power and high intensity at controlled remote distances [1]. A short laser pulse ($\sim$ 50 fs) produced by a Ti: Sapphire laser at 800 nm wavelength is propagated and focused in the laboratory to initiate LIBS. The research focuses on the detection of atoms, ions and chemical radicals present in the plasma generated by the high intensity laser. Emission radiation from the breakdown of contaminant is spectrally analyzed for signatures of the constituent chemical compounds. Currently, proof-of-concept studies are in progress, using representative chemicals such as sodium nitrate. Preliminary results will be presented. [1] I. Alexeev, et. al, APL 84, 4080(2004)

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