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**Formation of Organic Peroxides and Ethers at Post-Discharge Plasma Plume-Liquid Interfaces** MILAN BEGLIARBEKOV, STEVEN KOTOWICH, VLADIMIR TARNOVSKY, Stevens Institute of Technology — A direct current (DC) micro-hollow cathode plasma source operating in a mixed glow-streamer regime was used to generate an atmospheric pressure N<sub>2</sub> discharge. The post-discharge plume / afterglow was interfaced with a target liquid-phase solution, and caused a change in the chemistry of the target solution. In the present work we study the interaction of an N<sub>2</sub> plume with a mixture of 2-methyl-1-propanol and hexane, which results in the formation of organic peroxides and ethers at the plume-liquid interface. The presence of the peroxide and ether functional groups is established by <sup>1</sup>H-NMR, FTIR, and Raman spectra of the reaction products. Fast Atom Bombardment (FAB) mass spectrometry is also used to further characterize the reaction products.

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