



## **In-liquid Plasma Generation Systems Using Biocompatible Dielectric Coatings for Internal Plasma Medicine**

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The Cross-disciplinary Laboratory for Integrated Plasma Science and Engineering (CLIPSE) at Penn State engages in non-equilibrium plasma research for applications such as combustion, catalysis, and plasma medicine. Plasma medicine is a rapidly expanding field involving investigations into cancer treatment, chronic wounds, and sterilization of materials including living tissue, among others. The reported work focuses on the future application of plasma medicine inside the body: internal plasma medicine. Internal plasma medicine requires unique considerations for the application of high-voltage systems adjacent to living tissue. In particular, the possibility of substantial electrical current deposited to living tissue from a high-voltage electrode must be prevented. This can be accomplished with dielectric layers on the electrodes, but these layers must be compatible with biological systems. Here we report on our observations on biocompatible dielectric coatings for internal plasma medicine including aluminum oxide and the polymer, Parlyene-C. In addition, our laboratories efforts regarding the SARS-CoV-2 pandemic will also be reported.