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**Aerosols and plasma in the age of COVID-19: non-thermal plasma technologies for inactivation of viruses**

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The COVID-19 pandemic is caused by the coronavirus SARS-CoV-2, which can spread through the air via respiratory droplets and aerosols, as well as fomites on contaminated surfaces. The high risk of airborne transmission of SARS-CoV-2 via respiratory droplets led to an increased demand and eventual shortage of N95 masks and other personal protective equipment (PPE) needed by medical professionals on the frontlines of the pandemic. Although respiratory droplets (on the order of 100 microns) can settle from the air relatively quickly, respiratory aerosols ( $\leq 10$  microns) that could contain virus particles can remain airborne for long distances and durations. This talk will describe two on-going efforts at CJ Nyheim Plasma Institute at Drexel University related to the rapid development of non-equilibrium plasma technologies to combat the COVID-19 pandemic. The first effort involves the development of a non-equilibrium short pulsed plasma system that can generate plasma activated fog that is capable of rapid decontamination of PPE. Current results show that greater than 99.9