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**Non-Thermal Plasma Air Sterilization: Recent Experimental Validation, Identified Challenges, and Comparisons to Conventional Air Treatment Technologies**

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Increasing recognition of the transmissibility of the SARS-CoV-2 virus between humans as airborne aerosols, and the limited options for respiratory protection against such transmission, have drawn attention to air purification products, with their relative advantages and disadvantages being closely considered. This presentation reviews recent experimental achievements in using non-thermal plasmas (NTPs) as an improvement upon HEPA filtration and ultraviolet irradiation for rapid inactivation of airborne viruses of the sort that is essential for the treatment of flowing air streams typical of ventilation systems. Studies considering both viral surrogates and actual viral pathogens known to cause animal disease are discussed. Particular challenges in conducting inactivation studies of viral aerosols are enumerated and current solutions described. Finally, performance comparisons between NTP air sterilization and the established technologies of UV irradiation and particle filtration are presented, showing the substantial promise for performance improvements that NTP approaches offer.