



College of Liberal Arts and Sciences
Fall 2020 Chemistry Seminar Series
Friday, October 9th

Dr. Jimmy Radney
National Institute of Standards and Technology
U.S. Department of Commerce

Slowing the spread of COVID-19: using aerosol metrology to understand parameters affecting cloth face covering performance

Beyond the rampant global propagation of forest fires, the Corona Virus 2019 disease (COVID-19) caused by the Severe Acute Respiratory Syndrome Coronavirus 2 virus (SARS-CoV-2) has highlighted the impact of nanoscale aerosols and microscale droplets suspended in air on our daily lives. As a result of the pandemic, many laboratories rapidly shifted their focus to meet the research needs required to reduce the spread of and eliminate COVID-19. At NIST, my research has shifted from particle metrology and spectroscopy for climate change applications to materials science, textile engineering and particle physics to understand the parameters affecting cloth face covering performance in minimizing the dispersal of SARS-CoV-2.

In this seminar, I will discuss our recent laboratory work on: 1) how cloth face coverings serve as a source control for aerosols and droplets, 2) the filtration efficacy of common fabrics recommended for use in these cloth face coverings, 3) how humidity can improve this efficacy, 4) how filtering inserts may offer increased personal protection with a minimal decrease in source control, and 5) how fabric breathability impacts all of these observations. Time permitting, I will also discuss how this rapid shift and rush to publish has resulted in a “Wild West” scenario that potentially limits the usefulness of the disseminated data to the general public.

Disclaimer: The opinions, recommendations, findings, and conclusions presented do not necessarily reflect the views or policies of NIST or the United States Government.