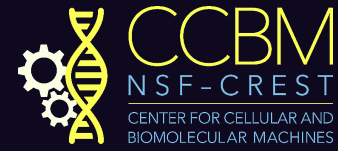




# Soft Living Active and Adaptive Matter



The life of a mucosalivary droplet: Lessons from synthetic breaths and sneezes

Brian Chang  
Clark University

## Abstract:

The main transmission mode of the COVID-19 disease is through virus-laden aerosols and droplets generated by expiratory events, such as breathing and sneezing. Patients with respiratory diseases are typically treated with oxygenation devices in hospitals, homes, and other settings where they increase the risk of spreading the disease to caregivers and first responders. Here, I will discuss a systematic study of aerosol and droplet dispersal through the air and their final deposition on surfaces. Through laser and fluorescent imaging techniques, we measure the volumetric spatial-temporal dynamics of droplet dispersal while varying rheological properties of the mucosaliva. We then demonstrate that a standard nose and mouth mask reduces the amount of mucosaliva dispersed by a factor of at least a hundred. Our ongoing collaborations with doctors and respiratory therapists from the Baystate Medical Hospital are developing new guidelines to help mitigate disease spread in a hospital setting.

Date:  
5/24/2021

Time:  
9:00 AM-10:15 AM (PT)

## About the speaker:

Dr. Brian Chang is a postdoctoral researcher at Clark University in Worcester, MA. He is pursuing topics in soft matter physics and the fluid dynamics of disease transmission with Prof. Arshad Kudrolli at the Complex Matter and Nonlinear Physics Laboratory.



Dr. Chang earned his Ph.D. in Engineering Mechanics from Virginia Tech in 2018. His Ph.D. dissertation is a study of biological interactions at the air-water interface integrating physical modeling with experiments. He loves pursuing curiosity-driven research at the intersection of biology, engineering, and physics.

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