Abstract Submitted
for the DFD20 Meeting of
The American Physical Society

Saliva Content and Viscosity and its Impact on Droplet Formation and Pathogen Transmission[1] MICHAEL KINZEL, JONATHAN REYES, DOUGLAS FONTES, MICHELLE OTERO, KAREEM AHMED, University of Central Florida, UNIVERSITY OF CENTRAL FLORIDA TEAM — Evidence that SARS-CoV-2 is airborne implies that a host's droplet character is important. Large droplets fall while aerosols remain suspended, hence, aerosols drive airborne transmission. Droplet size relates to airspeed (speech, cough, sneeze), saliva/mucus fluid properties, and content. This work evaluates fluidic drivers and their influence on transmissibility. Saliva is altered with: (1) colloids that increase viscosity/surface tension, and (2) stimulating saliva content. Using experimental and numerical tools, the droplet character, content, and exposure are evaluated. Results indicate that altering the saliva properties impacts the droplet size distribution, aerosols content, and exposure levels. Additionally, it is found that natural human response work with these drivers to potentially mitigate pathogen transmission. Previous studies indicate an increased saliva viscosity from stress and reduced saliva content from either stress or illness. These responses both favorably correspond to reduced transmissibility. The results also indicate a novel approach to alter SARS-CoV-2's transmission pathway and could help to control the COVID-19 pandemic and other pathogens.

[1]Funding for this research was provided by the CBET, Fluid Dynamics at the NSF under award number 2031227.

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Date submitted: 10 Aug 2020 Electronic form version 1.4