

BIOENGINEERING

PRESENTS

“Molecular biomimicry of the SARS-CoV-2 virus and consequences for severe inflammation and coagulation in COVID”



THURSDAY, December 10th, 2020

12:00 – 1:00 PM

Zoom Link:

<https://ucla.zoom.us/j/97216069429>

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ABSTRACT:

The two most salient features of COVID-19 are its high infectivity, and its lethality for a significant human subpopulation. The lethal pathologies include 1) amplified forms of inflammation (acute respiratory distress syndrome (ARDS), cytokine storms, septic shock) and 2) dysregulated forms of coagulation (severe blood clots that lead to cardiac events, multi system inflammatory syndrome in children (MIS-C)). By combining machine learning, synchrotron structural studies, in vitro and in vivo experiments, we show how SARS-CoV-2 can potentially precipitate these outcomes, via a novel form of biomimicry that results in grossly distorted immune responses and suppression of antiviral defenses, whereas other non-pandemic coronaviruses do not.

BIOGRAPHY:

Gerard C. L. Wong is a Professor in the Department of Bioengineering, Department of Chemistry, and the California NanoSystems Institute at UCLA. Wong received his BS and PhD at Caltech physics and Berkeley physics respectively. He joined the Materials Science & Engineering Dept and Physics Dept at the University of Illinois at Urbana-Champaign in 2000 and moved to UCLA in 2009.

His research recognition includes: the Beckman Young Investigator Award, Alfred P Sloan Fellowship, and Sackler Distinguished Speaker. He is a Fellow of the American Physical Society (2011), a Fellow of the American Academy of Microbiology (2016), and a Fellow of the American Institute for Medical and Biological Engineering (2018). His current research interests include bacterial biofilm communities, innate immunity, and antibiotic design.