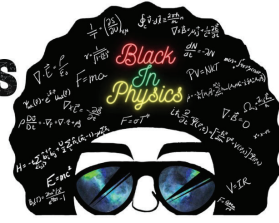


BLACK IN PHYSICS

October 25-31



Yale Physics



LaNell Williams

Harvard University

Wednesday, October 28, 2020 at 1:00 p.m.

Zoom link: <https://yale.zoom.us/j/97622482881>

Bulk light-scattering measurements of viral capsid self-assembly around RNA

Self-assembly is a vital part of the RNA virus life cycle. The assembly of viral coat proteins around viral RNA occurs both in vivo and in vitro, suggesting that viral capsid assembly may be driven by minimization of free energy. To better understand this process, we modify the interactions between coat proteins and between the coat proteins and RNA of MS2 bacteriophage in vitro by varying the ionic strength and pH, and we study the assembly using dynamic and static light scattering. From dynamic light scattering we determine the assembly yield and the size distribution of assembled products. From static light scattering, we measure the kinetics of assembly in bulk. By comparing the results from these two different techniques to each other and to results from gel electrophoresis, we infer features of the assembly pathway.

This work is supported by funding from the National Science Foundation Graduate Research Fellowship Program (NSF-GRFP). Additional authors are Tim Chiang, Rees Garmann, and Vinothan N. Manoharan

LaNell Williams is a Ph.D. student and NSF-GRFP Fellow at Harvard University Physics working in the Manoharan lab studying bulk light scattering methods for the study of bacteriophage MS2 virus self assembly. She is one of the volunteer organizers for #BlackInPhysics, founder of the Women+ of Color Project, steering committee member for APS-IDEA, and APS Councilor for the Forum on Graduate Students/Forum on Early Career Scientists.
