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Time-resolved spectroscopy of self-assembly of CCMV protein capsids[1] JELYN MOORE, Hampton University, DINA ARONZON, Harvard University, V.N. MANOHARAN, Havard University — In order to gain a deeper understanding of the process a virus undergoes to assemble; the purpose of this study to time resolve the self-assembly of a virus. Cowpea Chlorotic Mottle virus (CCMV), an icosahedral type virus, can assemble without its genetic code (RNA) depending on its chemical and physical surroundings. The surface plasmon resonance (SPR) of colloidal gold particles is known to display a shift when the gold interacts with the proteins of a virus. Surface plasmon resonance is the free electron oscillation occurring at the surface of the gold particle resulting in a characteristic peak location at maximal absorbance and peak width. The shift results from the change in the refractive index of the particles as induced by the presence of the proteins. We hope to detect this shift through total internal reflection microscopy (TIRM). The accomplishments of this research are the completion of the TIR setup and the purification of the virus and its proteins.

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