

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Structural transitions in condensed colloidal virus phases**

NATHAN SCHMIDT, Physics Dept, U. of Illinois, Urbana-Champaign, STEVE BARR, Materials Science and Engineering Dept, U. of Illinois, Urbana-Champaign, ANDREW UDIT, Scripps Research Institute, LEONARDO GUTIERREZ, THANH NGUYEN, Civil Engineering Dept, U. of Illinois, Urbana-Champaign, M. G. FINN, Scripps Research Institute, ERIK LUIJTEN, Materials Science and Engineering Dept, Northwestern U., GERARD WONG, Bioengineering Dept, U. of California, Los Angeles — Analogous to monatomic systems colloidal phase behavior is entirely determined by the interaction potential between particles. This potential can be tuned using solutes such as multivalent salts and polymers with varying affinity for the colloids to create a hierarchy of attractions. Bacteriophage viruses are a naturally occurring type of colloidal particle with characteristics difficult to achieve by laboratory synthesis. They are monodisperse, nanometers in size, and have heterogeneous surface charge distributions. We use the MS2 and Qbeta bacteriophages (diameters 27-28nm) to understand the interplay between different attraction mechanisms on nanometer-sized colloids. Small Angle X-ray Scattering (SAXS) is used to characterize the inter-particle interaction between colloidal viruses using several polymer species and different salt types.

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Date submitted: 09 Dec 2009

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