Invited talk to be presented at the
WORKSHOP ON PHSICAL VIROLOGY
International Center for Theoretical Physics
Trieste, Italy
September 23-28, 2012

IN VITRO RECONSTITUTIONS OF SIMPLE RNA VIRUSES AND VIRUS-LIKE PARTICLES

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ABSTRACT

In this talk I discuss our experiments on the self-assembly of RNA viruses and virus-like-particles (VLPs) from purified components. Using the capsid protein (CP) from cowpea chlorotic mottle virus (CCMV), we determine the nature and yield of the VLPs formed by mixing CCMV CP with RNA molecules ranging in length from 100 nucleotides (nt) to 10,000 nt. I focus on experiments in which we measure the relative packaging efficiencies of different RNA molecules that are forced to compete against each other for a limited supply of capsid protein. These results are discussed in the context of experimental and theoretical work on the shapes, sizes, and nature of branching of large RNA molecules.