

Abstract Submitted  
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**Variable length condensing agents in polyelectrolyte condensation** RICHARD GUAQUETA, ERIK LUIJTEN, University of Illinois at Urbana Champaign — We use grand-canonical Monte Carlo simulations to study the role of the condensing agent in polyelectrolyte condensation. The rigid polyelectrolytes are modeled on the M13 and fd viruses, and (following recent experiments) the condensing agents are short divalent chains of variable length  $\delta$  modeled on diamine molecules. We observe two different regimes of condensation as the length of the condensing agent varies, with the behavior at large  $\delta$  characterized by significant alignment of the diamines with the polyelectrolytes. We also study the effect of the polyelectrolyte surface charge density  $\sigma$ , and find that the stability of the condensed phase varies nonmonotonically with  $\sigma$ , in accordance with the observation of two *different* trends in experiments.

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