Abstract Submitted
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**Assembly and disassembly kinetics of conical particles**[1] STEFAN PAQUAY, Eindhoven University of Technology, ROYA ZANDI, University of California, Riverside, MIKE HAGAN, Brandeis University, PAUL VAN DER SCHOOT, Eindhoven University of Technology — We investigate the assembly and disassembly of conical and rod-like particles on a spherical template by means of computer simulations. The shape of the particles provides a simple but more realistic model for virus capsomeres than spherical particles, and it allows us to qualitatively investigate the influence of the particle shape on the self-assembly. We vary the particle geometry, the inter-particle interaction strength and the particle-template interaction strength, and find four different regimes characterised by 1) no assembly at all, 2) assembly of a capsid exhibiting holes and tears, 3) assembly of a closed, almost defect-free capsid and 4) partial assembly of empty capsids in addition to a capsid forming around the nanoparticle. We also probe the assembly and disassembly rates, and find that the defective capsids disassemble much faster, hinting at the potential importance of holes and tears for the maturation of certain viruses including alphaviruses and HIV-1.

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