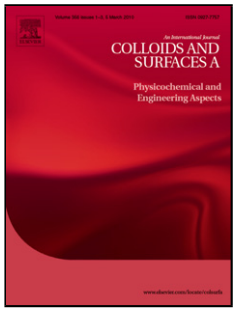

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Synthesis of raspberry-like polymer@silica hybrid colloidal particles through biphasic sol-gel process

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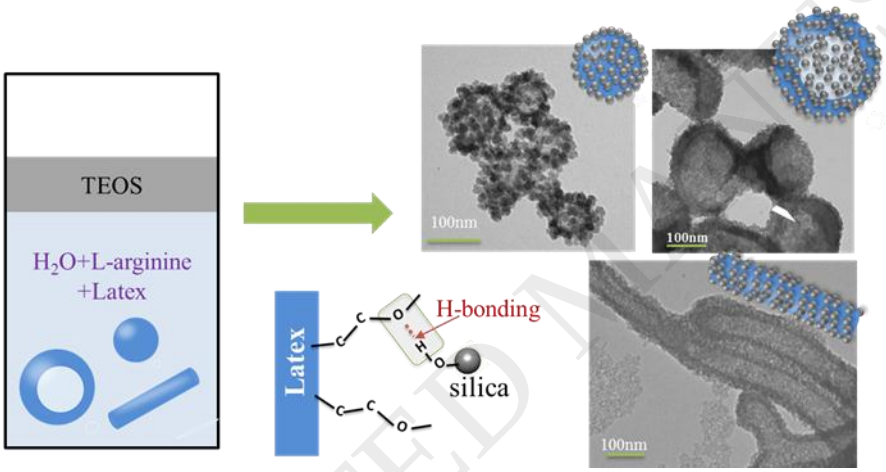
Graphical abstract



We report a simple process for the synthesis of raspberry-like hybrid colloidal particles through biphasic sol-gel process. Poly(ethylene oxide)- (PEO-) functionalized latexes with different morphologies (sphere, vesicle and fiber) were first dispersed in aqueous solution of L-arginine, a basic amino acid used as catalyst. As the silica source, tetraethyl orthosilicate (TEOS) was carefully added on top of the reactor to get a two-phase solution. TEOS is slowly delivered in the aqueous solution to form silica particles which can adsorbed on the latex surface due to the hydrogen bonding between PEO and Si-OH. Both raspberry-like spheres, vesicles and fibers were fabricated with different latex templates.

ABSTRACT