

Abstract Submitted  
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**Capillary Condensation: Novel Method for Patchy Particle Fabrication**<sup>1</sup> NINA IVANOVA, NICOLE ZACHARIA<sup>2</sup>, Texas A&M University — Patchy particles are patterned particles with at least one patch for anisotropic interaction. A novel route for their synthesis involves capillary condensation of a chemical species into the voids of an ordered colloidal sphere array. Polystyrene and silica particles ranging in diameter from 20 nanometers to 1 micron are assembled into crystalline arrays via evaporation induced self-assembly. The chemical condensed into the voids is then reacted with metal nanoparticles to produce novel patchy particles. The particles are characterized using FTIR, EDX and SEM. The size of these patches is quantitatively shown to reduce in size in proportion with increased particle radius. Surface Enhanced Raman Spectroscopy is explored as one of the possible applications for these novel particles.

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