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Synthesis and characterization of conductive core-shell Ag-polystyrene latex particles used as fillers in anisotropic conductive films

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In this study, a modified electroless silver plating process was used to prepare the monodisperse Ag-coated polystyrene core-shell type particles (Ag-PS). Silver nuclei produced on polystyrene particles with an electroless plating method served as nucleation sites for the growth of silver shell. A scanning electron microscope (SEM) was used to observe the particle size and morphology of Ag-PS particles. The results showed that a dense, stable and uniform silver shell grew on the surface of PS particles to form the Ag-PS composite particles with the diameter of 3 μm . The bulk conductivity of the Ag-PS composites could achieve 2427 S/cm with only 36% silver content. According to the results, the Ag-PS composite particles have great potential to be used as fillers in anisotropic conductive films.

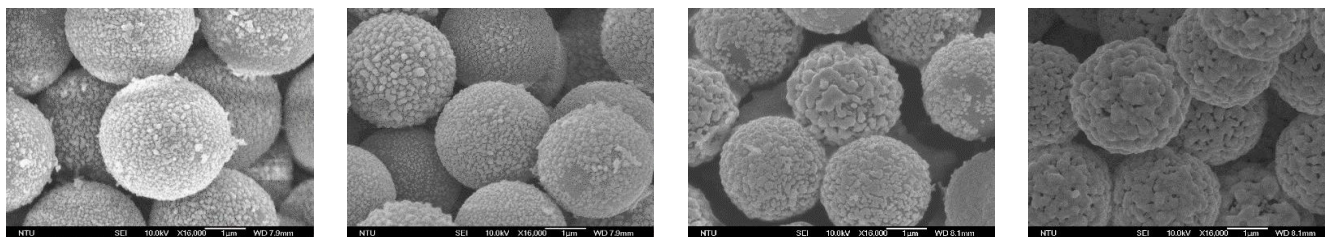


Figure 1: SEM images of Ag-PS composite particles with different silver content (a)27%, (b)36%, (c)51%, and (d)68%.

Biography

Chia-Fen Lee has her expertise in Polymer Materials and has interest in the study of the synthesis of polymer latex particles. She has synthesized various kinds of inorganic/polymer composite latex particles successfully for many years of experience in research. The conductive core-shell composite polymer particles are novel particles that can be used as fillers in anisotropic conductive films.

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