

### Fabrication of nickel-silver bimetallic particles using polydopamine coating

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Dopamine, inspired from adhesive proteins excreted by mussels, can act as a versatile surface modification agent for various organic and inorganic materials. By using adhesive polydopamine (PDA) as an intermediate layer, a simple and novel method for fabricating nickel-silver (Ni-Ag) bimetallic composite particles of core-shell structure is proposed. Ni-Ag core-shell bimetallic particles were fabricated by dispersing Ni powders into aqueous dopamine solution followed by electroless plating of Ag on the prepared Ni-PDA particles. PDA layer with nano-meter thickness were deposited spontaneously on the surface of Ni particles by oxidative self-polymerization of dopamine under alkaline conditions. Electroless plating of Ag on the prepared Ni-PDA particles was carried out in the presence of a reducing agent. Ni-PDA particles and Ni-Ag core-shell particles with PDA intermediate layer were characterized by XPS, FT-IR spectroscopy, FE-SEM, FE-TEM, XRD, and the electrical conductivity of Ni-PDA-Ag particles was measured by 4-point probe.