

Universal fabrication method of multi-composite polymer particles via piezo-driven inkjet nozzle

이학성, 박범준[†]

경희대학교

(bjpark@khu.ac.kr[†])

Diverse functional nanoparticles have been employed in various fields such as sensors, displays, solar cells, and batteries. The encapsulation process can offer merits for industrial applications because the properties of nanoparticles are often vulnerable to external environments (e.g., air, moisture, solvent, heat, etc.). We develop the simple fabrication method of microparticles using the piezo-driven inkjet nozzle, in which microdroplets of a polymer solution are periodically generated through the nozzle. Rapid solvent evaporation while the microdroplets fall in the air leads to the formation of kinematically stable polymer particles. In this way, various functional nanoparticles (i.e., thermochromic pigment, quantum dot, and perovskite) are facily encapsulated in various polymer matrices, and their physical/chemical properities encapsulated in polymer are maintained stably against the external environement.