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Synthesis of carbon hollow spheres by a modified hydrothermal carbonization method

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Carbon hollow spheres have many unique properties, such as high surface-to-volume ratio, thermal insulation, high chemical stability and structural stability, and are applied in fields of catalyst supports, fuel cells, gas storage and separation, batteries and supercapacitors. Here, hydrothermal carbonization and emulsion template method were combined to facilitate prepare carbon hollow spheres. About the formation mechanism in our synthesis, trioctylamine droplet in water played the role of soft template, and the hydrothermal carbonization took place on the surface of the droplet. The shapes of carbon hollow spheres were different with varying the amount of surfactant and reaction time. And bowl-like hollow spheres, nut-like hollow spheres and smooth carbon hollow spheres could be obtained. The metal catalyst of hydrothermal carbonization could also result in the change of morphology of the product.

Biography

Mingli Qin is Vice Director of Beijing Key Laboratory for Advanced Powder Metallurgy Technology and Particulate Materials and Professor of Institute for Advanced Materials and Technology at University of Science and Technology Beijing, Beijing, China. His primary research interest is synthesis of advanced powder, powder metallurgy technology with a special emphasis on powder injection molding. He published about 100 articles and 20 Chinese patents. He is the Editorial Board Member of *Powder Metallurgy Technology* and a fellow of three technical societies.

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