Short Communication

Fractal Growth of SiO_x Nanoparticles Accompany with Graphene Preparation

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Anisotropic growth mode is generally leading to simple self-similarity patterns. This paper presents a new perspective of looking at SiO_x growth accompanies with graphene growth which is in diffusion-controlled fractal growth process. Growth of SiO_x on the surface of copper was in stages and the samples were constantly monitored by scanning electron microscope. To confirm the critical structure of different etched areas of graphene, Raman spectra as well as energy dispersive spectrum were performed. Morphologies of SiO_x nanoparticles could be controlled by varying the Ar/H₂ flow rate ratios and silica gel concentrations. The characteristic topology of branch-like fractal patterns, identical to the topology of ternary-segment fractal line, is observed.

Keywords: SiO_x Nanoparticles; fractal growth; graphene; diffusion-limited aggregation

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