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탄소나노튜브 속에서 성장된 초미세 구리 나노와이어의 구조

Won Young CHOI, Jeong Won KANG, Ki Oh SONG and Ho Jung HWANG

Computational Semiconductor Laboratory, Department of Electronic Engineering, Chung-Ang Univ.

We have investigated the structures of copper nanowires encapsulated in carbon nanotubes using a structural optimization process applied to the steepest descent method. The results showed that the stable structure of the cylindrical ultrathin copper nanowires in carbon nanotubes is multishell packs consisted of coaxial cylindrical shells.

As the diameter of copper nanotubes increased, the encapsulated copper nanowires have the face centered cubic structure as the bulk. Both the semiclassical orbits in a circle and the circular rolling of a triangular network can explain the structures of ultrathin multishell copper nanowires encapsulated in carbon nanotubes.