
Controlled Wall Thickness of Cu/Al₂O₃ Nanocables by Using Atomic Layer Deposition and Electrodeposition

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We have been studied the fabrication of Cu/Al₂O₃ nanocables by using atomic layer deposition (ALD) and electrodeposition with a nanoporous polycarbonate (PC) membrane as the template. The Al₂O₃ nanotubes were successfully coated only onto the inner-wall of PC template by ALD at 413K. The Al₂O₃ wall thickness controlled by ALD cycle and Cu nanowires arrays were electrodeposited into the Al₂O₃ nanotubes and the PC filters were etched away using the solution of chloroform. The Cu/Al₂O₃ nanocables have been investigated by scanning electron microscopy (SEM) and transmission electron microscopy (TEM).