

## Morphological and growth characteristics of template-assisted electrodeposited cobalt nanowires: Effect of synthesis current density and temperature

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### ABSTRACT

Processing conditions during the deposition process affect the nanowire properties significantly in template-assisted electrodeposition, an effective method for growing freestanding and well-dispersed nanowires. In this work, we study the effect of current density and temperature on electrodeposited cobalt (Co) nanowire synthesized via a template-assisted process. Scanning electron microscopy was used to study the morphology of formed cobalt nanowires with EDS analysis, confirming Co as the main element. In addition, the length and growth characteristics of the formed nanowires are analyzed and discussed.

### KEYWORDS

Cobalt nanowires; Deposition process; electrodeposited cobalt; growth characteristic; Processing condition; SEM morphology; Template-assisted electrodepositions; Well-dispersed

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