經由固液固機制成長鍺奈米線

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摘 要

本研究在鍺基板上蒸鍍(1～9 nm)的金催化劑金屬以及3 nm的鎳催化劑金屬去成長鍺奈米線，並改變不同金催化劑厚度、不同成長溫度以及不同催化劑金屬去探討各種變數對鍺奈米線的影響。

由實驗結果可總結出以下的結論，如果將催化劑金膜厚度增大，在成核階段會形成尺寸較大的催化劑顆粒，而所析出的鍺奈米線的直徑也會較大，而溫度對鍺奈米線的成長影響很大。在成長溫度在550 ° C到600 ° C這之間，我們觀察到隨著溫度的增加鍺奈米線的長度會增加，但是成長溫度在625 ° C、650 ° C 時因為成長溫度過高，所以鍺奈米線的數量會變少，且會產生捲曲的鍺奈米線。鎳催化劑金屬所成長的鍺奈米線推測由於成長溫度太高所以會長出Z字型的鍺奈米線。

關鍵詞 : 鍺奈米線、金鍺合金

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