Thermal decomposition of ethanol and growth of vertically aligned single-walled carbon nanotubes by alcohol catalytic chemical vapor deposition

PRES 29

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The alcohol catalytic chemical vapor deposition (ACCVD) method[1] is becoming increasingly important for synthesizing high-purity SWNTs by a simple, inexpensive technique. In combination with a liquid-based dip-coat catalyst loading technique[2], the ACCVD method can also be used to produce films of vertically aligned SWNTs (VA-SWNTs)[3,4], which are desired for many potential applications. Recent studies have elucidated the growth process of these VA-SWNT films, but the details of the growth reaction are not yet well understood. In this study, we have investigated the thermal decomposition of ethanol at various temperatures, as well as the resulting growth due to interaction with metal catalyst particles.


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