

Growth of TMDC Nanostructures by Chemical Vapor Deposition

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Abstract

Chemical vapor deposition (CVD) is a simple but powerful technique to synthesize thin films of various materials. It can also be used to synthesize nano-structured materials if it is used with nano-structured templates or catalysts. We have developed separate flow CVD system to make multilayered transition metal dichalcogenides (TMDCs) or doped layers [1,2]. We used the apparatus to make nanocomposite between carbon nanotube and MoS₂ that was applied to photovoltaic applications (Figure 1) [3]. We also describe the search for the catalysts to make TMDC nanostructures.

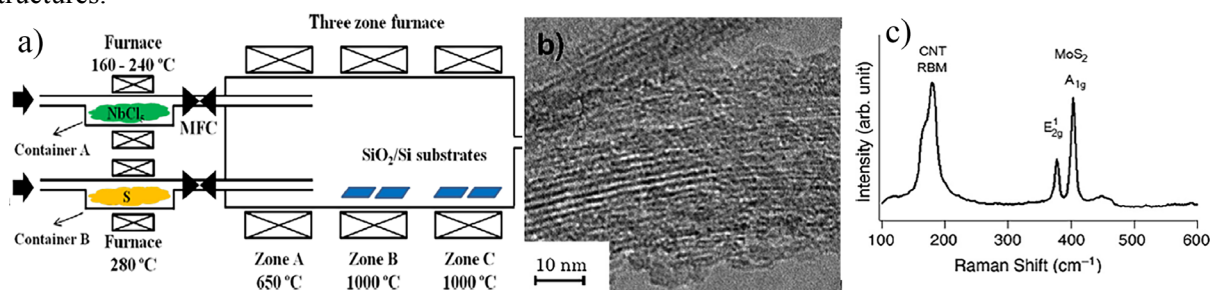


Figure 1. (a) Separate flow CVD [1,2] (b) TEM image and (c) Raman spectrum of MoS₂ nano flakes grown on carbon nanotube bundles [3].

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