Abstract Submitted
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Ultra-long carbon nanotubes for thermal management application[1] V.I. DEMIDOV, WVU/UES, A. SHASHURIN, M. KEIDAR, GWU, S.F. ADAMS, AFRL, O. VOLOTSKOVA, GWU — Thermal management is becoming one of key enabling technologies leading to mass production of fuel-cell, electric and hybrid vehicles, which must operate at temperatures significantly lower than conventional internal combustion engines. One promising direction to advance thermal management is usage of nanofluids. Nanofluidc are solid-liquid composite materials consisting of nanoparticles suspended in liquid. It was recently demonstrated that the thermal conductivity of an individual SWNT increases with length, thus making SWNTs an ideal structure for thermal control. We have investigated an effect of the magnetic field on SWNT synthesis. Experimental observation lead to the conclusion that yield of SWNTs in condensed products is higher in case when the magnetic field is switched on in comparison to the case without magnetic field suggesting that using the magnetic field it is possible to scale up SWNT production rate. The presence of the magnetic field seemingly doubles the length of SWNTs produced [1]. Additionally, samples from the deposit with the magnetic field have produced some of our longest SWNTs of over 6 microns in length. 1. M. Keidar et al, APL, 92: 043129, 2008

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