

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Understanding the growth mechanism of carbon nanotubes via the “cluster volume to surface area” model SREEKANTH MANDATI, JENS KUNSTMANN, Dresden University of Technology, Germany, FELIX BOERRNERT, RONNY SCHOENFELDER, MARK RUEMMELI, IFW Dresden, Germany, KAMAL K. KAR, Indian Institute of Technology, Kanpur, India, GIANAURELIO CUNIBERTI, Dresden University of Technology, Germany — The influence of mixed catalysts for the high yield production of carbon nanotubes (CNTs) has been studied systematically. Based on extensive experimental data a “Catalyst Volume to Surface Area” (CVSA) model was developed to understand the influence of the process parameters on the yield and CNT diameter distribution [1]. In our study, we present a refined version of the CVSA model developed by combining experiments and simulations. We discuss our current understanding of the growth mechanism and how the model might be used to increase CNT yields by using mixed catalysts.
[1] S. Tetali et al., ACS Nano (2009), DOI: 10.1021/nn9012548.

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Date submitted: 29 Dec 2009

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