Growth Control and Optical Spectroscopy of Single-Walled Carbon Nanotubes

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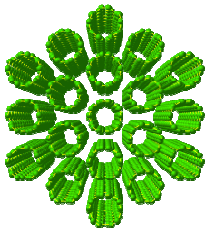
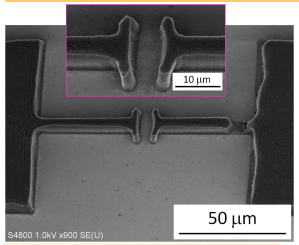


As a basic tool of an innovative machine design, growth and spectroscopy of nano-materials such as single-walled carbon nanotubes (SWNTs) are explored. Application to energy-harvesting devices and sensor devices is also studied.

Field effect transistor and sensors



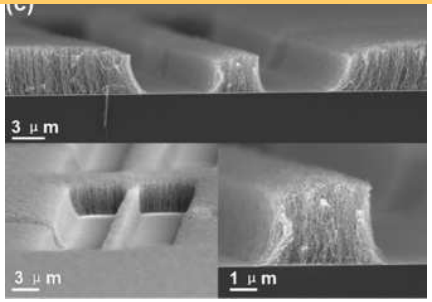
J.-J. Delaunay

I. Yamada

S. Ishihara

S. Aikawa et al., to be submitted.

Growth control of vertically aligned SWNTs

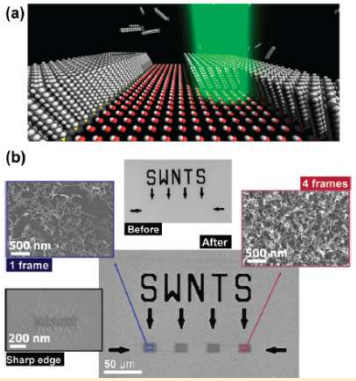


S. Noda

T. Okubo

R. Xiang et al., Jpn. *J. Appl. Phys. 49 (2010) 02BA03.*

Patterned growth of SWNT on substrates



Y. Suzuki

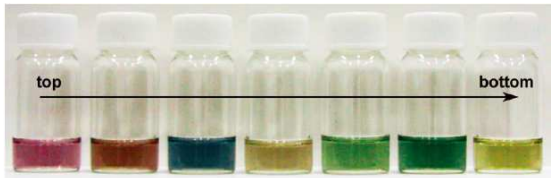
T. Kitamori

S. Takagi

Y. Matsumoto

R. Xiang et al., *J. Am. Chem. Soc., 131, 10344*(2009).

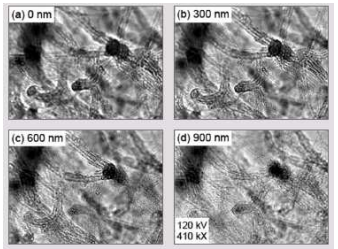
Structural sorting of SWNTs



E. Einarsson

P. Zhao et al., J. Phys. Chem. C, 114 (2010) 4831.

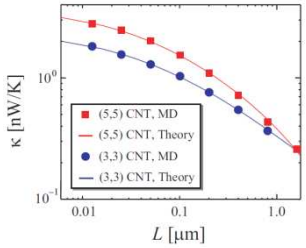
TEM observation for growth mechanism



Y. Ikuhara

E. Einarsson et al., J. Nanosci. Nanotech. 8 (2008) 6093.

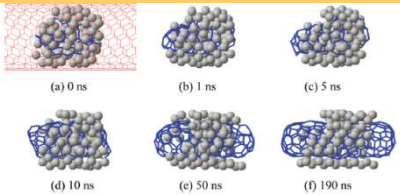
Theoretical study of thermal conductivity of SWNTs



S. Watanabe

T. Yamamoto et al.l, Appl. Phys. Express 2 (2009)095003.

Molecular dynamics simulation of growth process



J. Shiomi

Y. Izu et al., ACS Nano 4 (2010) 4769.