

Swinging Edges of Growing Carbon Nanotubes: Thermodynamics and Kinetics

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Abstract:

Recent measurements of the growth kinetics of individual carbon nanotubes revealed abrupt changes in the growth rate of nanotubes maintaining the same crystal structure. These stochastic switches call into question the possibility of chirality selection based on growth kinetics. A simple model, supported by Kinetic Monte Carlo and Molecular Dynamics simulations, shows that these switches are caused by tilts of the growing nanotube edge between two main orientations, close-armchair or close-zigzag, inducing different growth mechanisms. Beyond providing new insights on nanotube growth, these results point to ways to control the dynamics of nanotube edges, a key requirement for producing arrays of long structurally-selected nanotubes.



Registration
<https://forms.gle/XXJcFDrIbCQaZeux6>
Please register by Apr. 10.