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Title:Terahertz transmission ellipsometry of vertically aligned multi-walled carbon nanotubes

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Abstract:We demonstrate time-resolved terahertz transmission ellipsometry of vertically aligned multi-walled carbon nanotubes. The angle-resolved transmission measurements reveal anisotropic characteristics of the terahertz electrodynamics in multi-walled carbon nanotubes. The anisotropy is, however, unexpectedly weak: the ratio of the tube-axis conductivity to the transverse conductivity, σ_z / σ_{xy} , is nearly constant over the broad spectral range of 0.4-1.6 THz. The relatively weak anisotropy and the strong transverse electrical conduction indicate that THz fields readily induce electron transport between adjacent shells within multi-walled carbon nanotubes. © 2012 American Institute of Physics.

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Main heading:Ellipsometry

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Uncontrolled terms:Broad spectral - Electron transport - Tera Hertz - Terahertz transmission - THz fields - Time-resolved - Transmission measurements - Transverse electrical - Vertically aligned

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