

Abstract Submitted
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Terahertz Transmission Ellipsometry of Vertically-Aligned Multi-Walled Carbon Nanotubes MICHAEL PAUL, NICK KUHTA, JOE TOMAINO, ANDY JAMESON, LOUIS MAIZY, TAL SHARF, Oregon State University, NALIN RUPESINGHE, KEN TEO, Aixtron Ltd., SANDEEP INAMPUDI, VICTOR PODOLSKIY, University of Massachusetts Lowell, ETHAN MINOT, YUN-SHIK LEE, Oregon State University, OREGON STATE UNIVERSITY TEAM, AIXTRON LTD COLLABORATION, UNIVERSITY OF MASSACHUSETTS LOWELL COLLABORATION — 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, $\sigma_z/\sigma_{xy} = 2.3$, 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.

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