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**Stark effect of excitons in individual air-suspended carbon nanotubes**[1] MASAHIRO YOSHIDA, YUSUKE KUMAMOTO, AKIHIRO ISHII, AKIO YOKOYAMA, YUICHIRO K. KATO, The University of Tokyo — We investigate electric-field induced redshifts of photoluminescence from individual single-walled carbon nanotubes.[2] Photoluminescence spectra of air-suspended nanotubes within field-effect transistor structures are collected under an application of symmetric bias voltages on source and drain contacts.[3] We find that redshifts scale quadratically with field, while measurements with different excitation powers and energies show that effects from heating and relaxation pathways are small. We attribute the shifts to the Stark effect, and characterize nanotubes with different chiralities. By taking into account exciton binding energies for air-suspended tubes, we find that theoretical predictions are in quantitative agreement.

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