

Abstract Submitted
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g-Tensor control in a bent carbon nanotube quantum dot RUBY LAI, HUGH CHURCHILL, CHARLES MARCUS, Harvard University — We report low-temperature transport measurements of a carbon nanotube quantum dot containing a bend along its length. The bend occurred naturally in CVD growth, with a bend angle of 140 degrees and a radius of curvature of $\sim 1\mu\text{m}$. The device was contacted across the bend, with a global back gate and a top gate proximal to one arm of the bend. We measured the magnetic field angle dependence of conductance, tunneling rates, and bandgap in a 3-axis vector magnetic field. We characterize key signatures of carbon nanotube bends in the Kondo regime, comparing these dependencies in perpendicular and in-plane magnetic fields. We also demonstrate control of the electron spin g-tensor using gate voltages. Support from IBM, NSF-MWN, NSF-NRI through the INDEX Center, and Harvard University is acknowledged.

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