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Electron Transport in Carbon Nanotube Devices with Several Narrow Top-Gates JOSEPH SULPIZIO, CHARIS QUAY, Department of Physics, Stanford University, ZVONIMIR BANDIC, Hitachi San Jose Research Center, Hitachi Global Storage Technologies, DAVID GOLDHABER-GORDON, Department of Physics, Stanford University — Carbon nanotubes provide an excellent system for studying one-dimensional (1D) electron systems, known as Luttinger liquids. We report on the nanofabrication of carbon nanotube devices with several narrow top-gates, and provide initial electron transport measurements. Using the top-gates to induce tunable tunnel barriers within the nanotubes, we aim to probe electron-electron interactions by measuring transport across the devices. Fine control over the properties of such devices should enable the further study of other interesting quantum properties of 1D systems (e.g. spin-charge separation).

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