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Controlled production and electronic characterization of defects in carbon nanotubes BRETT GOLDSMITH, VAIKUNTH KHALAP, ALEXANDER KANE, PHILIP COLLINS, Univ. of California, Irvine — Electrochemical functionalization of nanotubes allows fine control of the number of functionalized sites on a nanotube down to the limit of single, point functionalizations in otherwise pristine devices. This presentation will describe the local and 2-terminal electronic properties of the resulting devices. Point-functionalized devices exhibit spatially-localized resistance as mapped by scanning Kelvin probe microscopy and local gate sensitivity associated with the chemical disorder. The findings are reinforced by further attachment of specific chemical markers visible to electron microscopy.

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