

Abstract Submitted  
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**Near-field optical study of Luttinger liquid plasmons in single walled carbon nanotubes.** SHENG WANG, Univ of California - Berkeley, ZHIWEN SHI, Shanghai Jiao Tong University, LILI JIANG, FENG WANG, Univ of California - Berkeley, CHONGWU ZHOU COLLABORATION — Quantum-confined electrons in one dimension (1D) behave as Luttinger liquid, which features charge spin separation and other intriguing properties starkly different from Fermi liquid. Single walled carbon nanotubes (SWNTs), with their extraordinary one-dimensional quantum confinement, provide the ideal platform to explore such Luttinger-liquid plasmons. We continued our efforts on using near-field optical microscopy to probe the Luttinger liquid plasmons in SWNTs. Our systematic study on plasmons in SWNTs provides more fundamental insight into the Luttinger liquid physics in 1D carbon nanotubes. This understanding is not only of fundamental interests, but is also important for nanophotonic and nanoplasmonic applications based on carbon nanotubes.

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