Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Photoresponse of Quasi-One Dimensional Graphene Nanostructures TU HONG, ZEYNAB JARRAHI, YUNHAO CAO, ALEX HUFFSTUTTER, YAQIONG XU, Vanderbilt University — Here, we perform simultaneous photocurrent and photoluminescence measurements of free-standing graphene nanostructures. Their photocurrent intensities show a linear relationship with the incident laser power, whereas their photoluminescence intensities increase non-linearly when the incident power rises. The photoluminescence may result from the thermal radiation generated during hot carrier relaxation. The power dependences of their photoluminescence reveal that these graphene nanostructures are quasi-one dimensional materials.

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Date submitted: 09 Nov 2012 Electronic form version 1.4