Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Control of specific vibrational modes in carbon nanotubes and fullerenes responding to fast intense laser pulses[1] ROLAND ALLEN, Texas A&M University, CHENWEI JIANG, Texas A&M University, Xi'an Jiaotong University, XIANG ZHOU, Texas A&M University, Wuhan University — This talk will review the results of Xiang Zhou [1] and Chenwei Jiang [2] for the response of carbon nanotubes and fullerenes to ultrafast laser pulses. For carbon nanotubes at low temperature, it is predicted [1] that laser pulses with *optimized durations* will excite particular vibrational modes with high specificity. This prediction results from a simple analytical model, and is confirmed by completely independent and detailed supercomputer simulations using semiclassical electron-radiation-ion dynamics, which are in remarkably precise agreement with the analytical solution. Similarly, for fullerenes at low temperature it is predicted [2] that a sequence of laser pulses with an *optimized delay* between pulses will excite a specifically chosen vibrational mode. In addition, vibrational modes can be suppressed and more generally controlled by an additional pulse. [1] X. Zhou, C. Jiang, and R. E. Allen, to be published. [2] C. Jiang, X. Zhou, R. H. Xie, F. L. Li, and R. E. Allen, to be published.

[1]Work supported by the Robert A. Welch Foundation, Grant A-0929.

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Date submitted: 18 Nov 2009 Electronic form version 1.4