

Abstract Submitted  
for the MAR14 Meeting of  
The American Physical Society

**The sonication of graphite in various solvents and surfactants to synthesize high quality graphene as well as the nitrogen doping of graphene**<sup>1</sup> DANIEL R. SODEN, JINCHENG BAI, LIFENG DONG, Department of Physics, Astronomy, and Materials Science, Missouri State University, Springfield, — The emergence of graphene in the scientific community has been the cause of much excitement among material scientists due to its unusual physical and photovoltaic properties. However, the much sought after monolayer graphene has proven to be difficult to produce in sufficient quantities This experiment aims to correct some of these problems, concerning itself with the synthesis of high quality graphene through continuous sonication with surfactant or solvent added throughout, as well as the issue of graphene quality as a function of sonication time. This was accomplished through the creation and addition of a solvent or surfactant solution to a graphite suspension during sonication lasting for 50, 80, 110,140, 170, and 200 minutes. The resulting suspension was then filtrated to separate out the graphene. Following this, the graphene was then doped through various methods with nitrogen to alter its properties. This completely physical method of graphene synthesis and doping provides a much simpler and more environmentally safe way to achieve the highly desired few layer graphene, and will hopefully allow for greater use of the substance in industry and its implementation into new technology.

<sup>1</sup>L. F. Dong acknowledges the support of the National Science Foundation (DMR-1126375 and DMR-1126375), the Faculty Research Grant and the Sabbatical Leave Award from Missouri State University.

Lifeng Dong  
Department of Physics, Astronomy, and Materials Science,  
Missouri State University, Springfield,

Date submitted: 15 Nov 2013

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