

MAR08-2007-004280

Abstract for an Invited Paper  
for the MAR08 Meeting of  
the American Physical Society

**Oliver E. Buckley Prize Talk: Why are we so excited about carbon nanostructures?**

MILDRED DRESSELHAUS, MIT

There is much current excitement about the interesting new physics and unusual physical properties of carbon nanostructures, particularly carbon nanotubes and graphene. A brief review will be given of the physical underpinnings of carbon nanostructures that were developed over the past 60 years, starting with the electronic structure and physical properties of graphene and graphite, and then moving to graphite intercalation compounds which contained the first carbon nanostructures to be studied experimentally. Liquid carbon studies were precursors to the fullerene family of nanostructures and vapor grown carbon fibers were precursors to carbon nanotubes. Particular emphasis is given to the recent developments in our understanding of the photophysics of carbon nanotubes and graphene, with perspectives on future research directions for these fields.