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Laser induced nanoparticles and crystals and their characterization MOHAMMADREZA REZAEE, Department of Physics and Astronomy, University of Tennessee; Knoxville, ROBERT COMPTON, Department of Physics and Astronomy, University of Tennessee; Knoxville, Chemistry Department, University of Tennessee; Knoxville — Intense nanosecond lasers are used to fabricate nanoparticles by direct laser solid interactions as well as laser produced shock wave induced crystallization in saturated solutions. In particular, laser graphite interactions under liquid nitrogen results in variety of interesting new carbon nanoclusters. In particular, exfoliation of graphite to produce graphene is considered. Laser produced shock wave in unsaturated salt (e.g. NaCl, $NaClO_3$) solution immediately produces thousands of tiny crystals. These nonmaterials are examined using Raman spectroscopy under liquid nitrogen, RUN), laser induced fluorescence, plasma spectroscopy, UV-Vis spectroscopy as well as conventional characterization methods such as SEM and HRTEM imaging.

Mohammadreza Rezaee
Department of Physics and Astronomy

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