

Abstract Submitted
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Harvesting materials formed under extreme conditions: Synthesis and isolation of nanocarbons derived from detonation of high explosives MILLICENT FIRESTONE, BRYAN RINGSTRAND, RACHEL HUBER, DANA DATTELBAUM, RICHARD GUSTAVSON, DAVID PODLESIAK, Los Alamos Natl Lab — High explosive detonation products are primarily composed of molecular gases and solid carbon products. Recent studies have shown that the solid carbon condensate morphologies can vary depending on the high explosive and / or the pressure, temperature, or environment of the detonation. These studies have revealed, for example, unique carbon nanoparticles possessing novel morphologies, such as ones composed of hollow cores surrounded by lamellar structured graphitic shells. Despite these observations little work has been done to isolate these particles from the recovered post-detonation soot. This lack of effort to isolate and purify these products limits our understanding of their materials properties and, ultimately our ability to adapt them for useful materials. Herein, we report our recent studies directed at the production of nano-carbons through the detonation of a high explosive (e.g., composition B) under a range of experimental conditions. We further describe work directed at isolation and purification of the carbon nanoparticles.

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