

Abstract Submitted
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Fluorescent Quantum-Sized Carbon Dots Isolated in an rf Paul Trap¹ ANDREW FARR, College of Charleston, CURTIS ALLEN, RUSSELL HILLEKE², ROBERT CLARK³, The Citadel, the Military College of South Carolina — Quantum-sized carbon particles, known as carbon dots, exhibit strong wavelength- and size-dependent photoluminescence that makes them attractive candidates for many applications in nanoscale electronics and as biological markers. It has been shown that carbon dots become luminescent upon surface passivation with organic molecules; however, this property has never been verified outside of a chemical solution. To understand the mechanisms which underlie the photoluminescence, we are building an experiment to isolate single carbon dots in vacuum in an rf Paul trap and perform laser-induced fluorescence spectroscopy upon them. We report progress toward this goal, including the design and implementation of a custom electrospray ionization system.

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