

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Low temperature study of DNA-encapsulated silver clusters as optical emitters¹ SUMANT OEMRAWSINGH, University of Leiden, PATRICK O'NEILL, University of California, Santa Barbara, RICK LEIJSEN, University of Leiden, ELIZABETH GWINN, DEBORAH KUCHNIR FYGENSON, DIRK BOUWMEESTER, University of California, Santa Barbara — Recently, it has been found that small clusters of silver atoms can be encapsulated by single-stranded DNA (Ag:DNA) and will absorb and emit at visible wavelengths. Unlike more conventional optical labels, such as colloidal quantum dots, the host DNA strand determines the size and optical properties of the emitters. We are currently performing spectroscopic studies of several species of Ag:DNA emitters at helium temperatures, in order to investigate their feasibility as well-defined single-photon sources that can interact coherently. If this proves successful, self-assembly of Ag:DNA emitters onto DNA scaffolded arrays with nanometer accuracy has potential applications in superfluorescence studies and quantum information processes.

¹NSF grant nr 0622257

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Date submitted: 20 Nov 2009

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