

Abstract Submitted
for the TSF12 Meeting of
The American Physical Society

Resonance Fluorescence Localization Microscopy with Subwavelength Resolution¹ ZEYANG LIAO, Institute for Quantum Science and Engineering and Department of Physics and Astronomy, Texas A&M University, College Station, TX 77843-4242, USA, M. AL-AMRI, The National Center for Mathematics and Physics, KACST, P.O.Box 6086, Riyadh 11442, Saudi Arabia, M. SUHAIL ZUBAIRY, Institute for Quantum Science and Engineering and Department of Physics and Astronomy, Texas A&M University, College Station, TX 77843-4242, USA — We evaluate the resonance fluorescence spectrum of a bunch of two-level atoms driven by a gradient coherent laser field. The result shows that we can determine the positions of atoms from the spectrum even when the atoms locate within subwavelength range and the dipole-dipole interaction is significant. This far-field resonance fluorescence localization microscopy method does not require point-by-point scanning and it may be more time-efficient.

¹This research of Z. L is supported by Heep Fellowship. This work is supported by grants from the King Abdulaziz City for Science and Technology (KACST) and the Qatar National Research Fund (QNRF) under the NPRP project.

Zeyang Liao
Institute for Quantum Science and Engineering
and Department of Physics and Astronomy,
Texas A&M University, College Station, TX 77843-4242, USA

Date submitted: 24 Sep 2012

Electronic form version 1.4