

Abstract Submitted
for the TSF14 Meeting of
The American Physical Society

Two Color Fluorescence Enhancement Using Gold Nanogratings¹

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— We demonstrate directional enhanced fluorescence emission from two fluorophores using a gold wire grating with a period of 500 nm. The dominant enhancement mechanism was found to be fluorophores decaying back to the ground state by exciting a surface plasmon mode, which can then radiate via the periodicity of the grating. Gratings were manufactured with soft lithography using silicon master gratings and polydimethylsiloxane (PDMS) molds. Fluorescent enhancement from the gold gratings corresponds to surface plasmons observed by measuring the transmission of white light through the gratings as a function of incident angle. Fluorescent enhancement of two fluorophores on one grating was observed using two different excitation lasers, producing similar enhancements. Fluorescent measurements were recorded by fixing the angle of a laser incident on the grating and varying the detector angle relative to the sample.

¹This research was supported by an award from Research Corporation for Science Advancement

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Date submitted: 25 Sep 2014

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