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Single Molecule Optical Signal Comparison of Fluorescent Molecules and Raman Active Nanoprobes EDWARD ALLGEYER, University of Maine Department of Physics, ADAM PONGAN, GARY CRAIG, MICHAEL MASON, University of Maine Department of Chemical Engineering, MASON LAB GROUP TEAM — In recent years various enhancement techniques have been used to greatly improve the effective cross section of all flavors of raman spectroscopy. Further, coupling specific probe molecules to metal nanoparticles allows for a nanoprobe with an enhanced effective raman cross section making raman probes a viable technique for imaging and spectroscopy in biological and material systems. However, it has been claimed that intensity variations of raman nanoprobes are too large for raman nanoprobes to be useful. Here we report on a study of intensity variations of novel raman active nanoprobes and contrast this with intensity variations of typical single molecule fluorescent probes. In both cases an intensity distribution is built from the single molecule level.

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