

NWS15-2015-000076

Abstract for an Invited Paper  
for the NWS15 Meeting of  
the American Physical Society

**A Primer on Optical Nanoscopy**

BETHE SCALETTAR, Lewis and Clark College

For nearly a century, diffraction has imposed an essentially impenetrable barrier of  $\sim 200$  nm on the lateral resolution of far-field optical microscopy. However, in the mid 1990's this barrier began to crumble, and  $\sim 20$  nm lateral resolution now can be achieved with fluorescence microscopy by switching between bright and dark states of fluorescent markers. The significance of this achievement is immense, as exemplified by the fact that pioneers in "optical nanoscopy" were awarded the 2014 Nobel Prize in Chemistry. In this talk, I will present a primer on optical nanoscopy and show how we have used this technique to elucidate attributes of proteins involved in learning and memory formation.