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Spatio-Temporal Super-Resolution Imaging Improves Localization of Emitters in High Background Samples MEGAN K. DUNLAP, Dept. of Chemistry, Colorado State University, DUCAN P. RYAN, PETER M. GOODWIN, JAMES H. WERNER, JENNIFER A. HOLLINGSWORTH, Center for Integrated Nanotechnologies, Los Alamos National Laboratory, MARTIN P. GELFAND, Dept. of Physics, Colorado State University, ALAN VAN ORDEN, Dept. of Chemistry, Colorado State University — A super-resolution microscope equipped with time-correlated single photon counting detectors records photon arrival times that can be incorporated into the localization algorithm. This additional information improves the localization precision of single emitters in the presence of high fluorescent background. In this talk, we report on details of the localization algorithm that incorporates the single photon arrival times, and we demonstrate its advantages over a traditional analysis with simulated and experimental data. LA-UR-20-27550.

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