CUI CLUSTER COMPOUNDS FOR THE FLUORESCENCE DETECTION OF SUBSTANCES OF ABUSE <u>David Nash</u>, Krisia Rosario, Sandra M. Hick, Richard. G. Blair, Department of Chemistry and The National Center for Forensic Science, University of Central Florida, Orlando, FL, 32816.

Fluorescent indicators based on CuI clusters are sensitive, rapid, and low cost materials for detecting substances of abuse. These indicators are shelf stable and the complexes formed can be stored for long periods of time without loss of fluorescence. We have produced presumptive tests that facilitates the identification of cocaine, 1-benzylpiperazine, phencyclidine (PCP), and trifluoromethylphenylpiperazine (TFMPP). The fluorescence observed in these complexes is due to the nature of the metal and metal-analyte bonds present in the complex. This is a well understood phenomena and will stand up to Daubert challenges.

By coupling new sources, fluorescent indicators, and digitizing systems it will be possible to positively identify compounds rapidly in the field and in the lab. Ultimately, this approach could be implemented in a small handheld system that will allow assessment of multiple indicators in the field.