

**IMPROVED DESIGN OF PAPER-BASED MICROFLUIDIC DEVICES FOR ON-SITE ANALYSES.** Jennifer Hilmer, An-Phong Le. Department of Chemistry and Physics, Florida Southern College, 111 Lake Hollingsworth Drive, Lakeland, FL 33801.

Paper-based microfluidic devices represent a platform upon which chemical analyses can be easily produced and inexpensively performed. Additionally, these paper-based devices are lightweight and thus easily transported and require small sample volumes ( $\ll 1$  mL). Field use of these paper-based chemical sensors requires protection of the device from environmental contaminants, and we have developed an inexpensive and facile method of encapsulating these devices using clear packing tape. We have also integrated a colorimetric test for the presence of alkaloids using Dragendorff's reagent into a paper-based sensor design for the simultaneous collection and assay of liquid samples. This encapsulated sensor design potentially enables future analyses of the same sample as a portion is retained in a separate compartment and protected from the environment.