

SC - Short Course #4

Paper-based analytical devices

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Paper has long been used as a substrate for chemical measurements, starting from simple litmus paper and advancing to more elegant methods like lateral flow immunoassays. In 2007, Whitesides' group reported a new use of paper as a substrate for chemical analysis where flow channels were created in paper by adding hydrophobic barriers. In this way, multiplexed chemistry could be carried out in a simple, elegant format. Since this initial work, the field of paper-based analytical devices (also referred to as Lab-on-Paper or Capillarity-Based Microfluidics) has grown exponentially. Growth in this field is the result of the ease of manufacturing and use of the devices. This short course will cover a range of topics within the field, including fundamental device characteristics, fabrication, and applications. A short laboratory demonstration will also be included that provides limited hands on experience with making and using paper-based analytical devices.