Hands-On Workshop – LACE2011

Hollywood Beach Marriott
Hollywood, Florida

Instructor: Prof. Blanca Lapizco-Encinas, Tennessee Tech University

Equipment: Courtesy of LabSmith, Inc. Featured products are the HVS448 eight channel programmable high voltage power supply with Sequence™ software, the uProcess™ programmable syringe pumps and automated valves, CapTite™ microconnectors, and SVM340 synchronized video microscope with uScope™ software.

This hands-on three hour electrokinetics and microfluidics workshop will give the student experience with the following topics:

1. **Microfluidics Summary** – Overview of design, injection, field parameters that effect performance
2. **Electroosmotic flow**, analyzing the effects of: applied voltage, suspending medium properties (pH and conductivity) and zeta potential of the microchannel
3. **Dielectrophoresis** with focus on insulator based dielectrophoresis, streaming and trapping regimes. Applications for the concentration and sorting of particles in a single device.
4. **Programming an electrokinetic injections** and separations, considering the effects of channel geometry, timing and electric field distribution.
5. **Particle image velocimetry**, fundamentals and applications to microscale electrokinetics.
6. **Pressure driven flow for microfluidics applications**, programmable microscale syringe pumps and valves.
7. **Enhanced visualization for microfluidics applications,** modular bottom-up viewing and fluorescent illumination for compact microfluidics microscope

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