

## **Micro/Nanofluidics for Guided Assembly and Gene Delivery**

This presentation will cover new microfluidic and nanofluidic techniques for flow-guided assembly of novel nanoconstructs and in vitro/in vivo gene delivery. De-wetting guided assembly of DNA on micro/nano-patterned surface can lead to the formation of nanowire and nanochannel arrays. Electrokinetic flow-guided assembly can produce gradient functional surfaces in deep micro- and nanoscale channels. Microfluidic hydrodynamic focusing can generate uniform polyplex and lipopolyplex nanoparticles containing DNA/RNA. Such constructs are used to delivery genes and oligonucleotides into cells through nanocarriers and nanonozzle membrane sandwich electroporation.

**Prof. L. James Lee**

**The Ohio State University**