

**BME 695L Engineering Nanomedical Systems**  
**September 18, 2007**  
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**Lecture 8: Technologies for measuring nanomedical systems on/within cells**

- I. Introduction to measuring technologies for nanomedical system interaction with cells
  - A. The importance of quantitative or at least semi-quantitative single cell measurements to detect presence and location of nanomedical systems
  - B. Below "optical limit" imaging
  - C. Requirements on the NMS to have X-ray dense, fluorescent, metallic, or magnetic cores
  - D. Can you study living cells?
  
- II. Technologies – Advantages and disadvantages
  - A. Flow cytometry – a "zero order" imaging device
  - B. Scanning and Transmission electron microscopy
  - C. Confocal microscopy – one and two-photon
  - D. Surface Plasmon Resonance (SPR) Imaging
  - E. Atomic Force Microscopy
  - F. Magnetic Sorting/MRI contrast agents for in-vivo imaging

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