

530/580.496 Micro/Nanoscience & Biotechnology
Final Presentation

Each student should find a partner and work as a group of two. Each group needs to identify a paper within one of the following 6 themes for review and presentation. The reference(s) listed in each of the themes can only be used to help find a related paper but cannot be used as a topic of your presentation.

Themes:

1. [Laminar flow & Transverse diffusion](#) (Kamholz et al, Anal Chem, v71, pp5340)
2. [Ratcheting & Brownian motion](#) (Huang et al, Science. v304, pp987; Ros et al, Nature, v436, pp928)
3. [Digital microfluidics : Electrowetting-on-dielectric \(EWOD\)](#) (Cho et al, J. MEMS, v12, no1, pp70)
4. [Micro mixing](#) (Stroock et al, Science, v295, pp647)
5. [Micro-concentrator](#) (Jung et al, Electrophoresis, v24, no21, pp3476)
6. [Functional Nanomaterials](#) (e.g. Au nanoparticles, quantum dots, nanowires, and nanotubes)-based biosensors (Taton, Science, v295, pp1503; Zheng, Nat Biotechnol, v23, pp1294, Zhang, Nat Mater, v4, pp826)

- Each group should send the selected paper (PDF file) and the names of students in the group to Dr. Wang via email by Dec 5. It is important that the paper for presentation is chosen from recent publications (2004 and after) in high profile journals.
- The presentation (5 min plus 2 min for questions) will be held on Dec 11. The presentation should cover (i) the design and physical principles, (ii) the key results, (iii) discussions on future directions/applications (and possibly the scaling laws of the physical principles)