

Spring 2010

Fabrication Paper

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Phys 1307 Spring 2010 Fabrication Paper

In this paper, you will choose a nanofabrication method to describe in detail. Assume your audience does not have a science background, but is familiar with some basic nanotechnology knowledge (such as the people in this class). Make sure you talk about the advantages and disadvantages of the method – what are the size limitations? What are the shape limitations? What types of material can be used/fabricated using this method? Also, what applications may benefit from this fabrication technique? Would this technique be useful in an industrial application or a research lab setting?

Paper Mechanics:

- Paper is to be 3-5 pages in length, 1 inch margin, 10 or 12 point font, double spaced, justified, *including* figures and references
- You must have at least 3 references not given by me (see ‘seed’ references below)
- You must use proper citations with a bibliography at the end of the paper
 - If you are summarizing a part of an article or book, indicate the source with either a superscript¹ or [1] where 1 corresponds with the source in the bibliography
 - If you are quoting a part of an article or book, use proper quotation marks
- Include captions for all figures
- Figures may be copied from articles or books, but please site the source in the figure caption.
- Right is an example of a figure with caption and reference material. If you have trouble inserting the figures, send me an email.

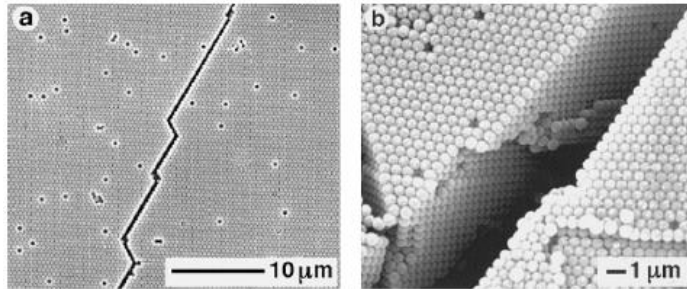


Figure 1: SEM image of a colloidal crystal of 0.48 micron polystyrene beads. From [1]. (b) is a close up of the crystal shown in (a)

IMPORTANT DATES:

Tuesday February 16th

Class held in the library to learn about the science reference material available

Tuesday March 2nd

Annotated Bibliography Due

Tuesday March 9th

Paper due

Possible Paper topics (if you want to research another topic, clear it with me first)

- Colloidal Crystals
 - *Advanced Materials*, **12**(7):531 2000
 - *Advanced Materials*, **10**(13):1028 1998
- Imprint Lithography (molding and embossing)
 - *Chemical Reviews*, **105**:1171 2005
 - *Angewandte Chemie International Edition*, **37**:550 1998
- Microcontact Printing or Microcontact Lithography
 - *Chemical Reviews*, Vol **105**:1171 2005
 - *Angewandte Chemie International Edition*, **37**:550 1998
- Dip Pen Lithography
 - *Angewandte Chemie International Edition*, **43**:30 2003
- Nanosphere Liftoff Lithography
 - *Journal of Physical Chemistry B*, **105**:5599 2001

Grading Rubric:

	Comments	Points
Mechanics Correct length Number of refs Proper citations Figure captions	-	/20
Material covered Clear description of fabrication method Limitations discussed Possible materials Possible applications, industry or academic		/40
Grammar/Style of writing		/20
Annotated Bibliography Correct citation style Clear summations of sources		/20
total		