2017.5.12 QE

MEMS ENGG5404

1. Explain "scaling law", and what are two most commonly used actuators in the microscale and explain why.

2. Explain thermal evaporation and sputtering, the pros and cons, when will you choose thermal evaporation and when will you choose sputtering?

3. Define APCVD, PECVD and LPCVD, what are the pros and cons.

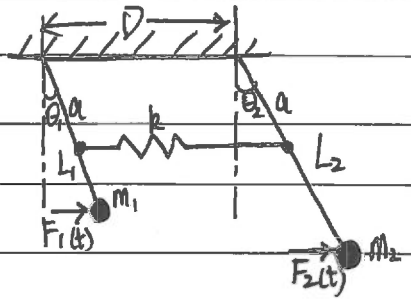
4. What are positive photoresist and negative photoresist? Under what circumstance will you choose PR and ~ will you choose NP?

5. In order to enhance the uniformality of the film, what will you do to design a CVD chamber?

Smart materials MAEG5080

Lagrange, derive the equation of motion of the system

$F_1(t)$ and $F_2(t)$ are applied to m_1 and m_2 respectively



Nanomaterials MAEG5120

1. Explain the two-photon phenomenon with schematic diagram.

2. What is the advantages of Two-photon microscopy over confocal laser scanning microscopy. list two

3. Calculate the thrust force for an spheric microorganism to maintain it's speed.