

## BIOLOGICAL FRAMEWORKS FOR ENGINEERS

### Session #12 [nm: Micro and Nano Fabrication]

#### General Objectives:

- ✓ Introduction to microelectronics, microfabrication, and nanotechnology
- ✓ Identify ways that biology can be better understood with small tools

#### Central Framework:

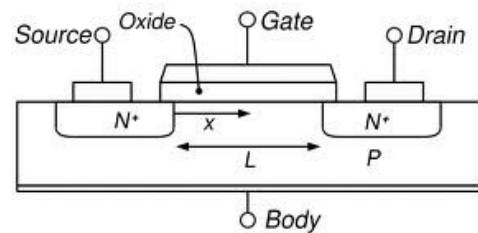
- ✓ Engineering and physics has enabled tools that are able to manipulate objects at the micro and nanoscale

#### Session Outline:

#### I. Transistor

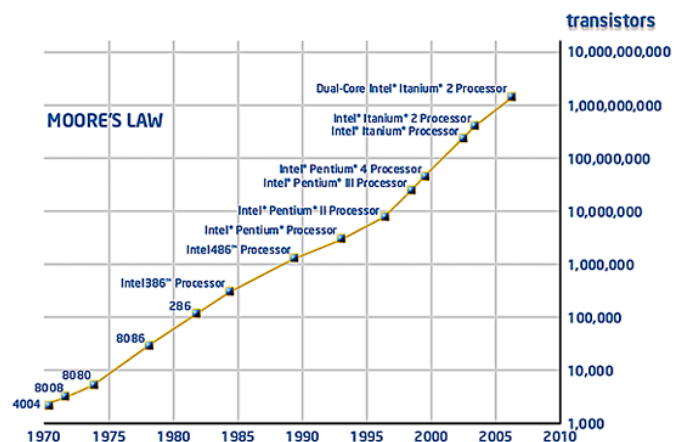
##### a. Vacuum tubes

##### b. Solid State Transistor



#### II. Integrated Circuits

#### III. Moore's Law



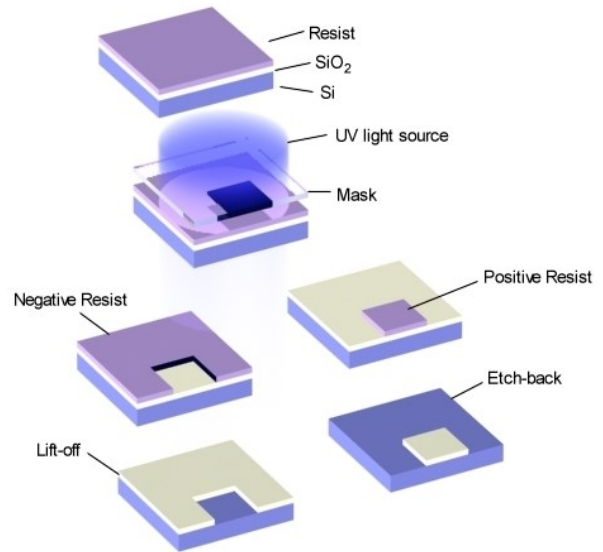


## VI. Lithography

## a. Patterning

## b. Positive Resist

## c. Negative Resist



## VII. Soft Lithography

## a. SU-8

## b. Polydimethylsiloxane

## c. Apps

## VIII. Cell tools

IX. Nanotechnology

a. Nanolithography

b. Molecular Assembly

c. Nanomaterials