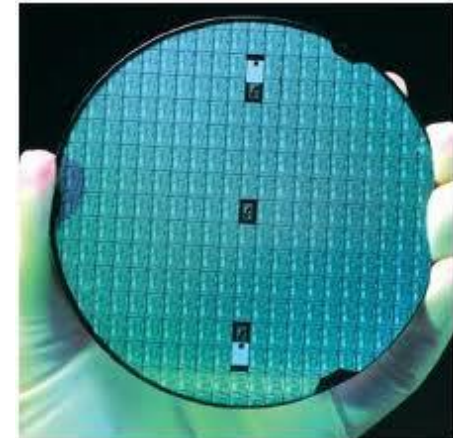
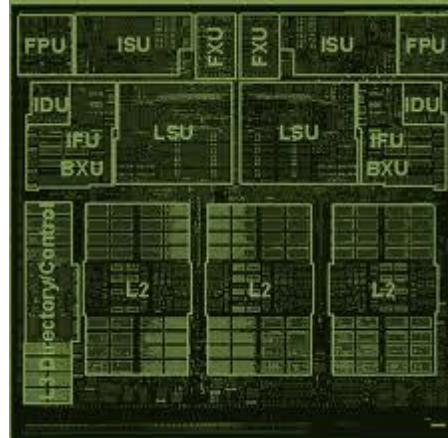
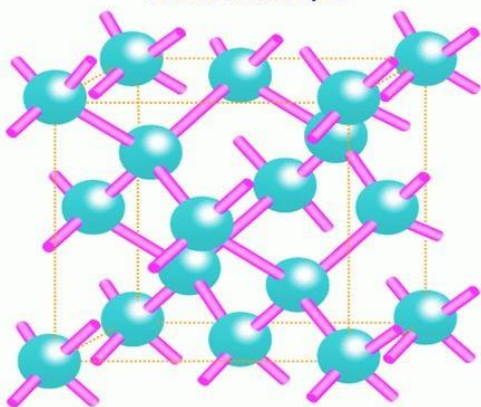


Structure of silicon crystal



# ***ECE 225***

## ***High Speed Digital IC Design***

### ***Lecture 5***

#### ***Discussion of Project Topics***

Prof. Kaustav Banerjee  
Electrical and Computer Engineering  
University of California, Santa Barbara  
*E-mail: [kaustav@ece.ucsb.edu](mailto:kaustav@ece.ucsb.edu)*

# ***Suggested Project Topics....***

- **Emerging Technologies for VLSI and More-than-Moore Technologies:**
  - a. CMOS Based – UTBSOI, FinFET, GAAFET, NWFET
  - b. Non-Si Devices – such as 2D-FETs
  - c. Novel memory technologies like RRAM, MRAM, FRAM, STT-RAM, PCM etc
  - d. Green devices – Tunnel FETs, IMOS, Fe-FET, NEMFET etc. Non-charge (spin) based devices
  - e. 3D ICs: design architectures for maximizing performance and energy-efficiency, opportunities with new materials and devices
  - f. Emerging interconnect technologies: nano-Carbons such as graphene nanoribbons, optical, RF interconnects etc
- **Non-Von Neumann Architectures**
  - a. Neuromorphic computing

***Note: The listed topics above are suggestions only. You may choose a topic outside of this list, but prior approval is needed.***

# *Project Timeline....*

- ❑ Must work individually...
- ❑ Abstract due: April 20 (~ 1 page)
  - Literature review and identify problem to be addressed within a given topic.
  - Justify your project...
- ❑ Final project presentations: during the last week of class (~20 mins per student)
- ❑ Final project report due in June (end of finals week)