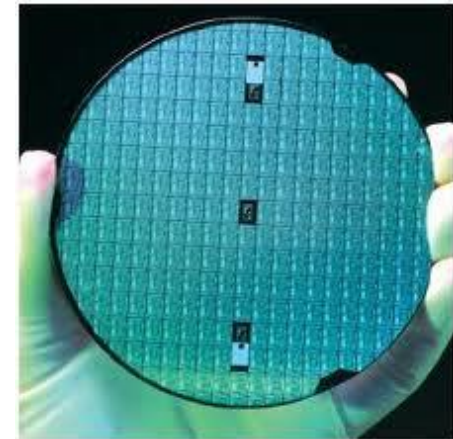
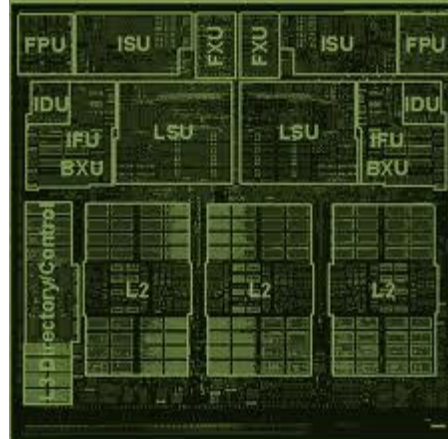
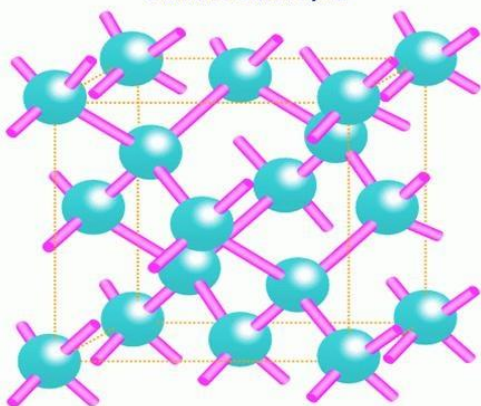


Structure of silicon crystal



ECE 225

High Speed Digital IC Design

Lecture 2

Discussion of Project Topics

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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)