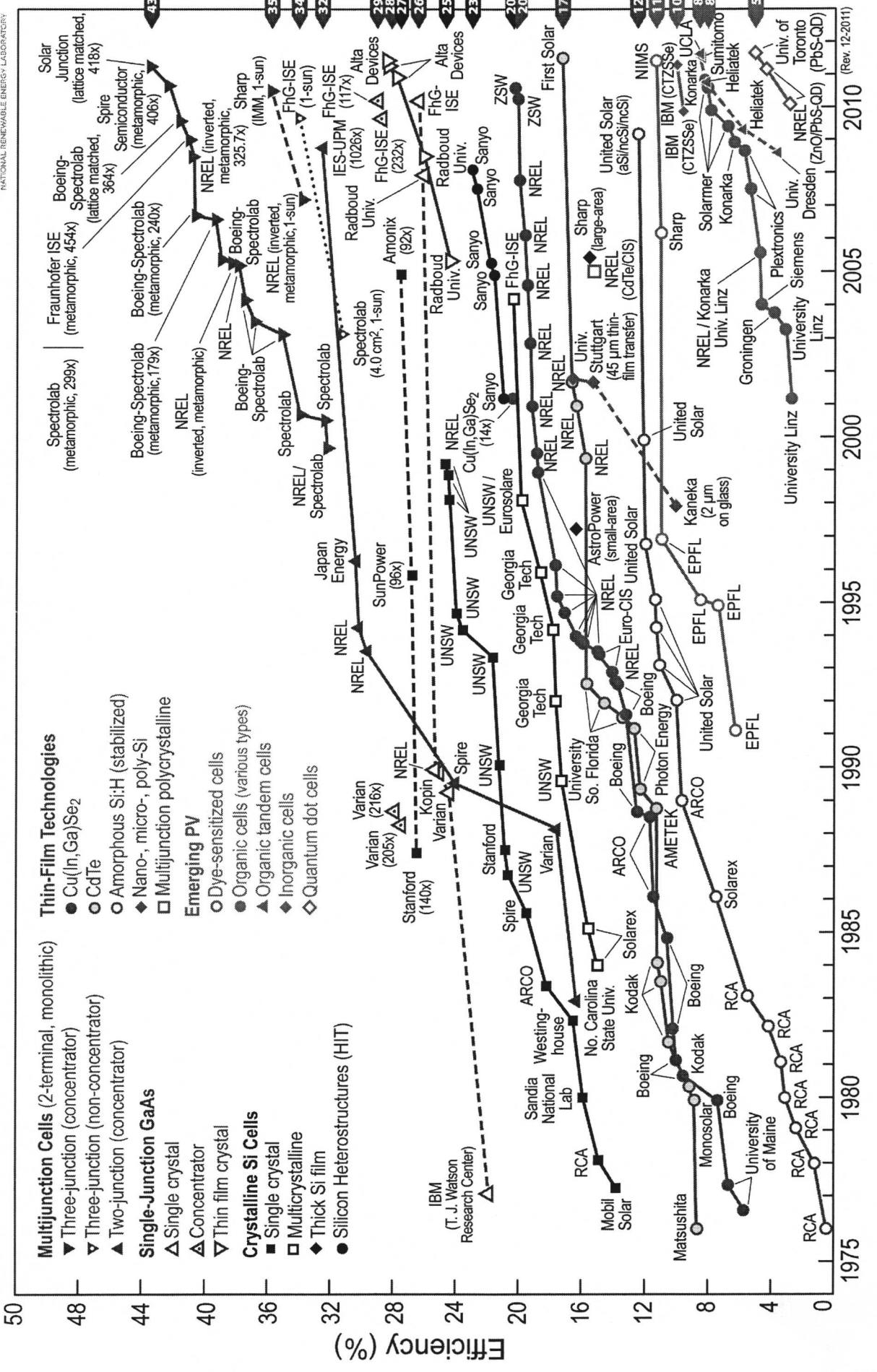


DAY 11
Ph 682



Best Research-Cell Efficiencies



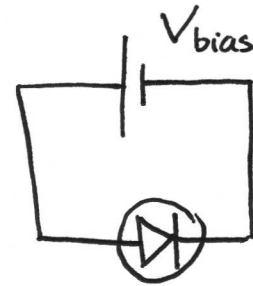
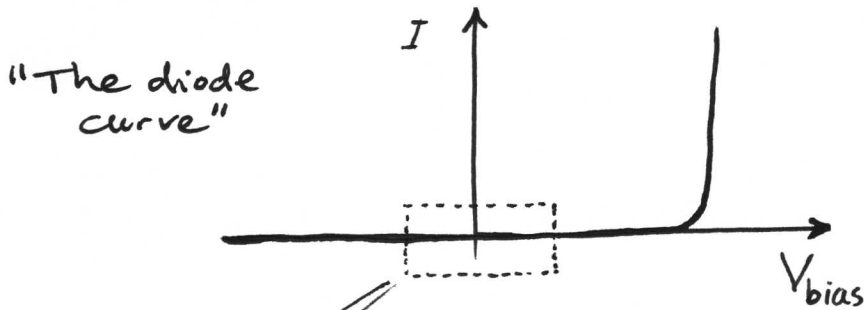
(Rev. 12-2011)

Focus on crystalline Si.

Understand - Language of the research field

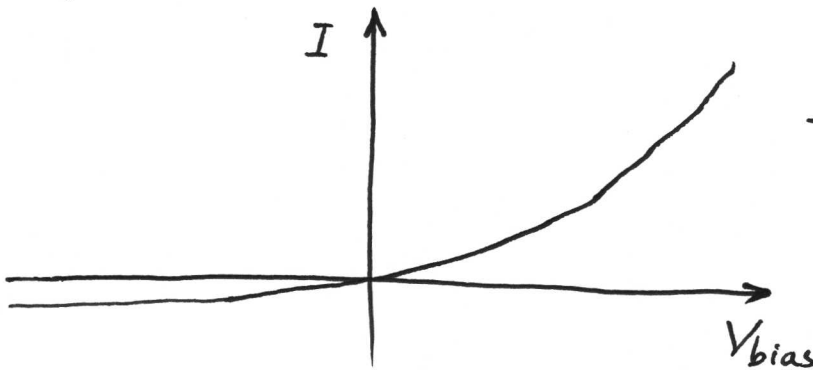
- Key principles
- Challenges to designing high efficiency
- Concrete example when discussing Shockley-Quisar limit.

Solar cells are made from pn junctions



↑ circuit symbol for pn junction.

Zoom in



A&M Eq 29.26

$$I = I_0 \left(\exp\left(\frac{eV_{bias}}{kT}\right) - 1 \right)$$

when $eV_{bias} < E_g$

Diode curve = Dark I-V characteristics of a solar cell.