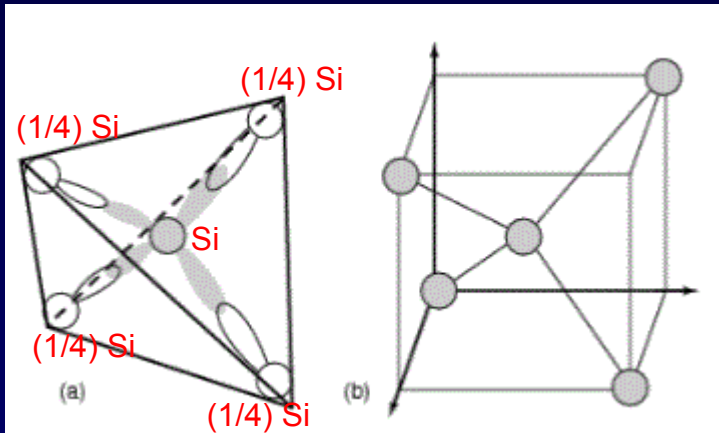
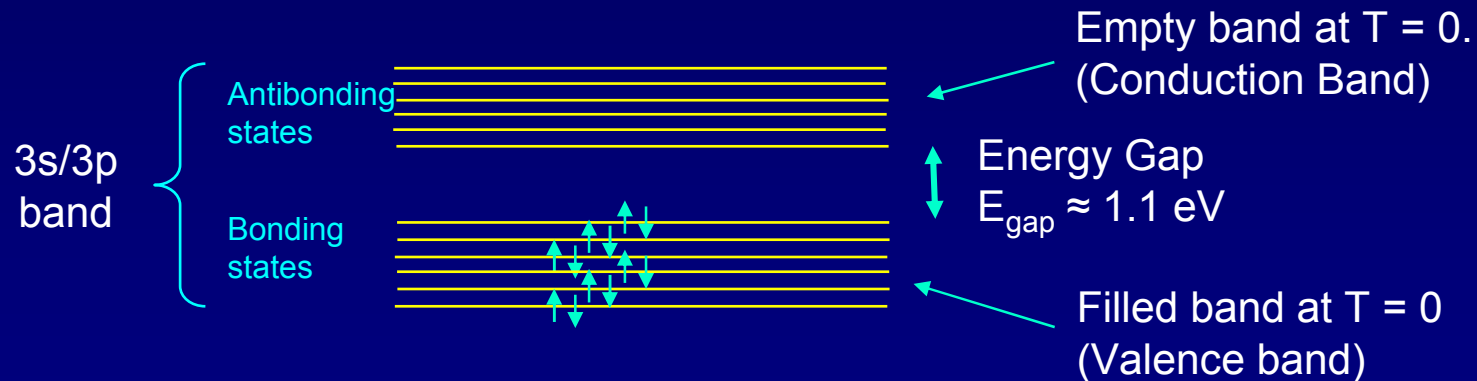
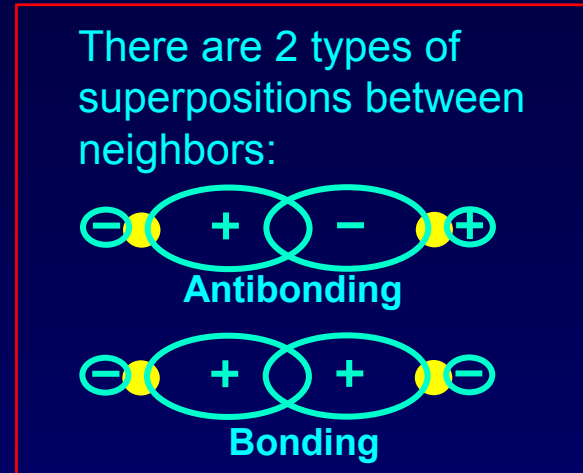


Silicon (2)

Silicon Unit Cell



2 - Si atoms/unit cell



- ❑ 8 sp^3 -orbitals in one unit cell
- ❑ 8 orbitals form superpositions (4 bonding and 4 anti-bonding combinations)
- ❑ 8 orbitals \times 2 spin = 16 states
- ❑ 8 electrons fill the 4 lower energy (bonding) states