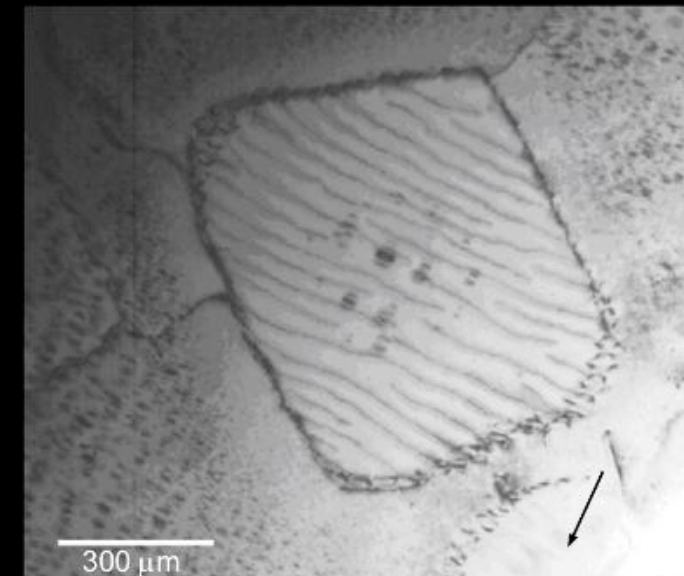
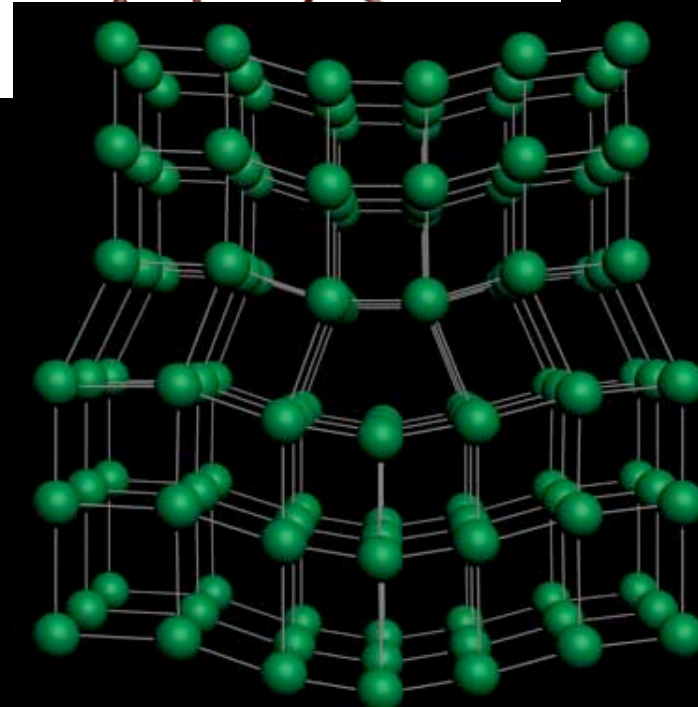
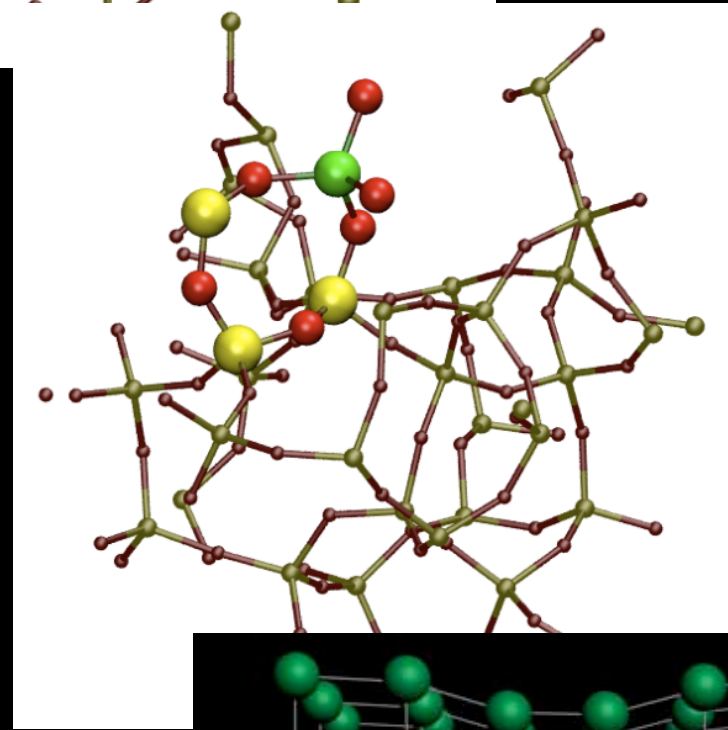
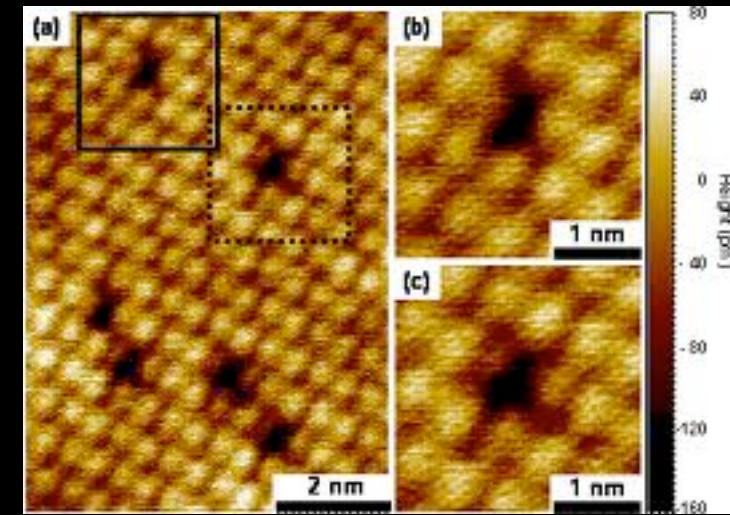
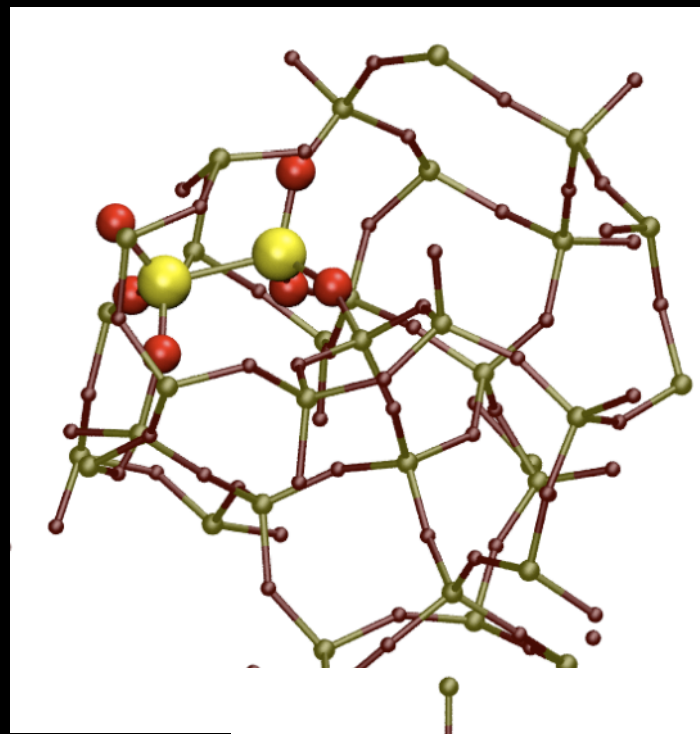


Defects in semi-conductors and insulators

L. Martin-Samos

Algo que “rompe” el perfecto
orden cristalino

- Point defects
 - Interstitials
 - Vacancies
 - Frenkel
 - Schottky
 - Antisites
 - Impurities
- Extended defects
 - Clusters
 - Topological
 - Grain boundaries
 - Dislocations



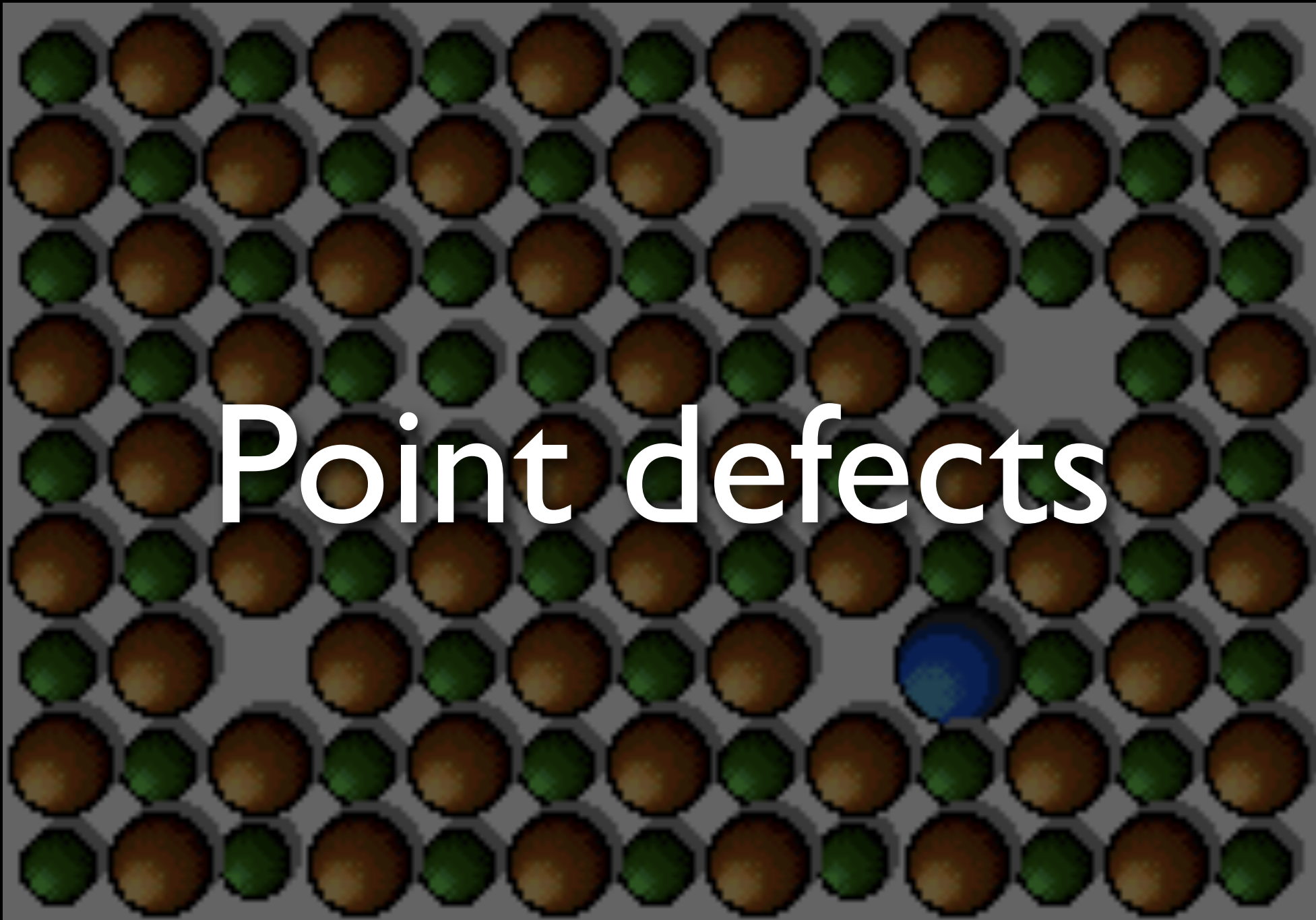
IT lowers the free energy!

- Chemical reactions
- Exchanges with reservoirs
- Entropy
- P/V
- Temperature

non-equilibrium factors

- Manufacturing processes
- Aging processes: irradiation, mechanical stresses,...

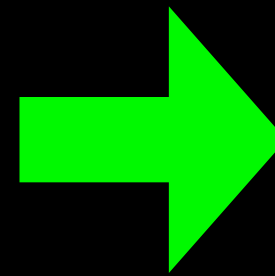
Point defects



What defines a defect?

- Atomic-scale structure??

- Formation Energy
- Migration Energy



Activation Energy

- signature:
 - optical absorption lines
 - Fluorescence
 - EPR signal