

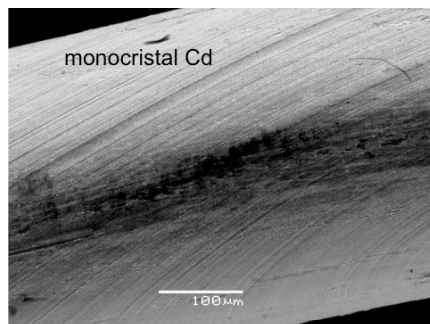
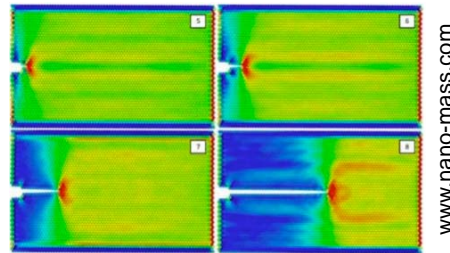
PHY6505: Physique de la matière condensée

Cours 19 Défauts

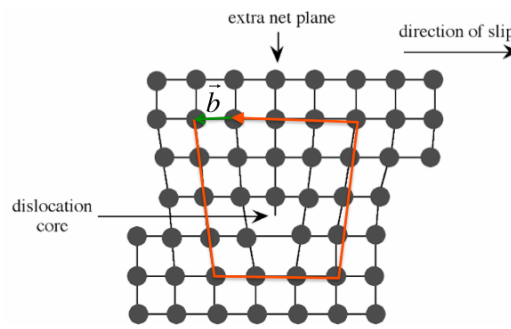
François Schiettekatte
Université de Montréal
Automne 2010

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- Déformation plastique
- Fracture

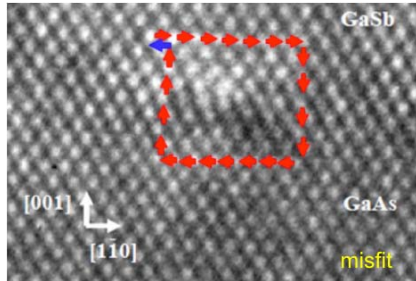


www.doitpoms.ac.uk/tlplib/slip

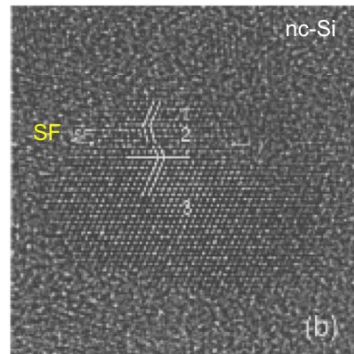


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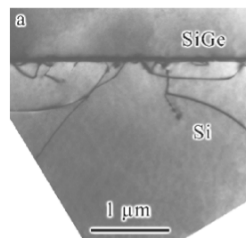
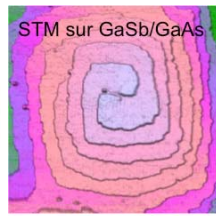
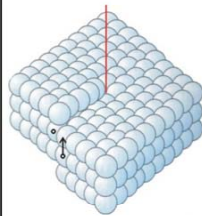
Défauts de croissance



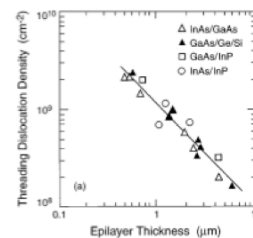
Jallipalli et al. Nanoscale Res. Lett. 4 (2009) 1458



Wang et al. PRB 71 (2005) 161310R



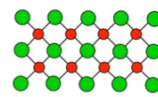
Steinman et al. Semicond. Sci. Technol. 14 (1999)582



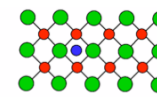
Sheldon et al. JAP 63 (1988) 5609

Défauts ponctuels

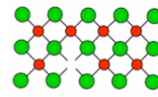
- Interstitiels (I)
- Lacunes (V)
- Impuretés/dopants
- Complexes
 - V_2 , VO , VC ...
- Schottky
- Frenkel
- Centres de couleur
 - Émission avec structures \sim atomes
 - $\Delta\lambda$ selon temps de vie
 - F: lacune anion
 - Emission entre ω_L ω_T
 - E' : V_O^+ dans SiO_2
 - NV^- @ diamant
 - $\Delta\lambda=10$ MHz @ 638 nm
 - #bleaching



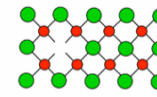
(a) perfect lattice



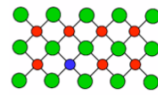
(b) interstitial impurity



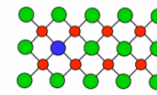
(c) cation vacancy



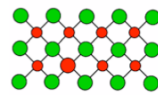
(d) anion vacancy



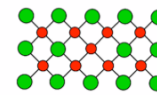
(e) substitution of cation



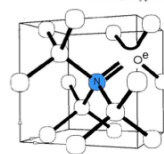
(f) substitution of anion



(g) B_A antisite defect



(h) A_B antisite defect



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