

Morphogénèse et Nanostructures

Olivier Pierre-Louis

CNRS/Spectro, UJF-Grenoble.

Eric Bonnetier

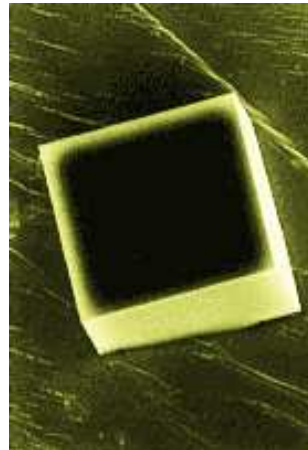
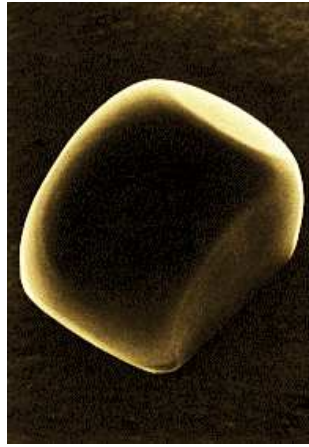
LMC, IMAG, Grenoble.

2006

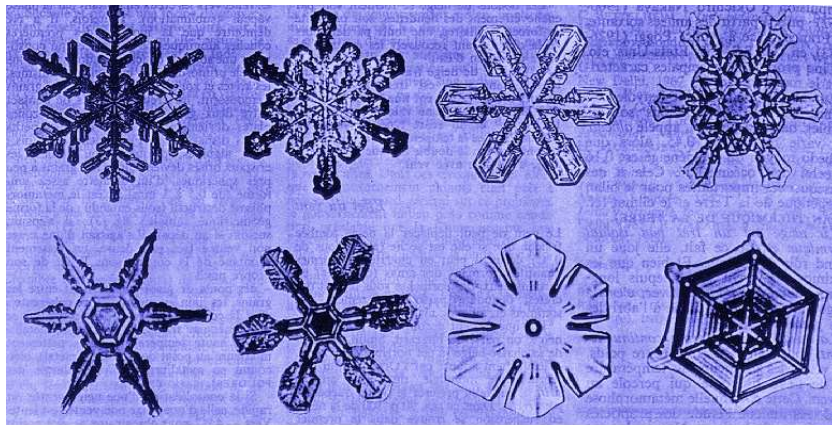
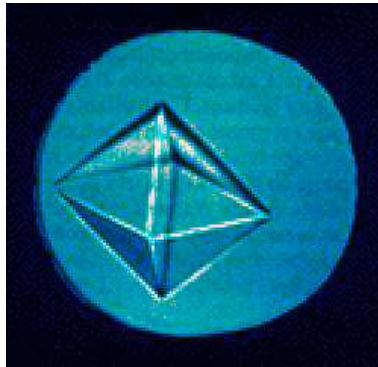
Première Partie

Formes d'équilibre et formes stationnaires

- Transition rugueuse et forme d'équilibre
- Modèle de Frank
- Clusters dérivants



NaCl Métois, CRMCN, Marseille



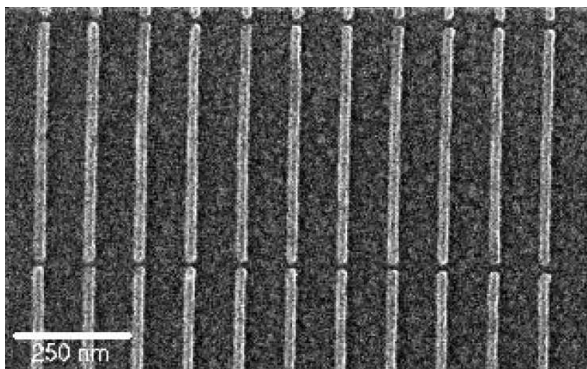
Y. Furukawa, Hokkaido Univ.

Sculpter les surfaces?

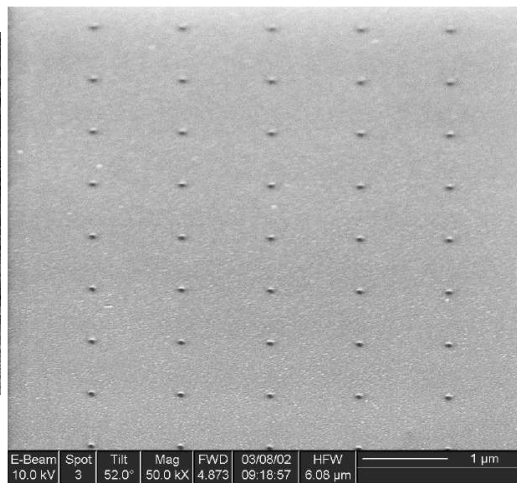


Lithographies:

- électronique (polyméthacrylate de méthyle)
- ionique (Silicium)

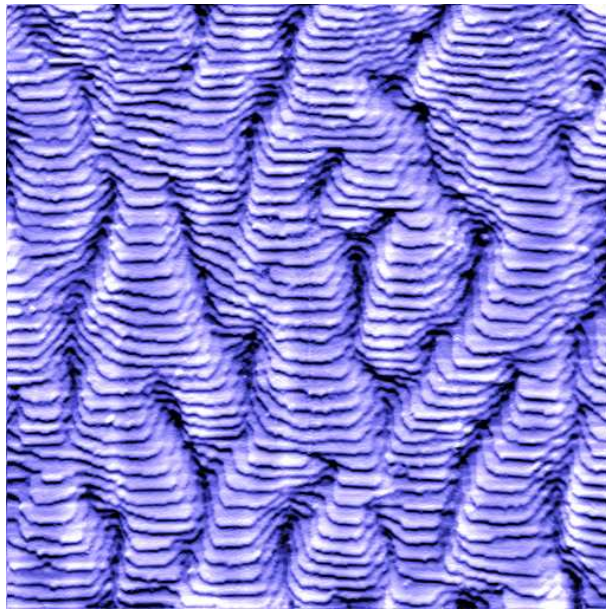
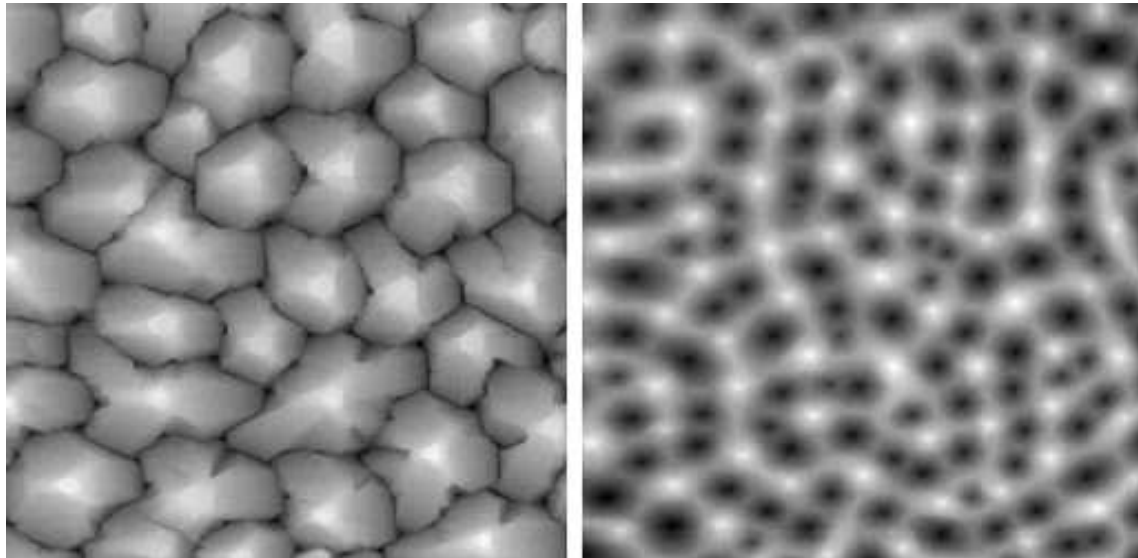


Hoole et al 1997



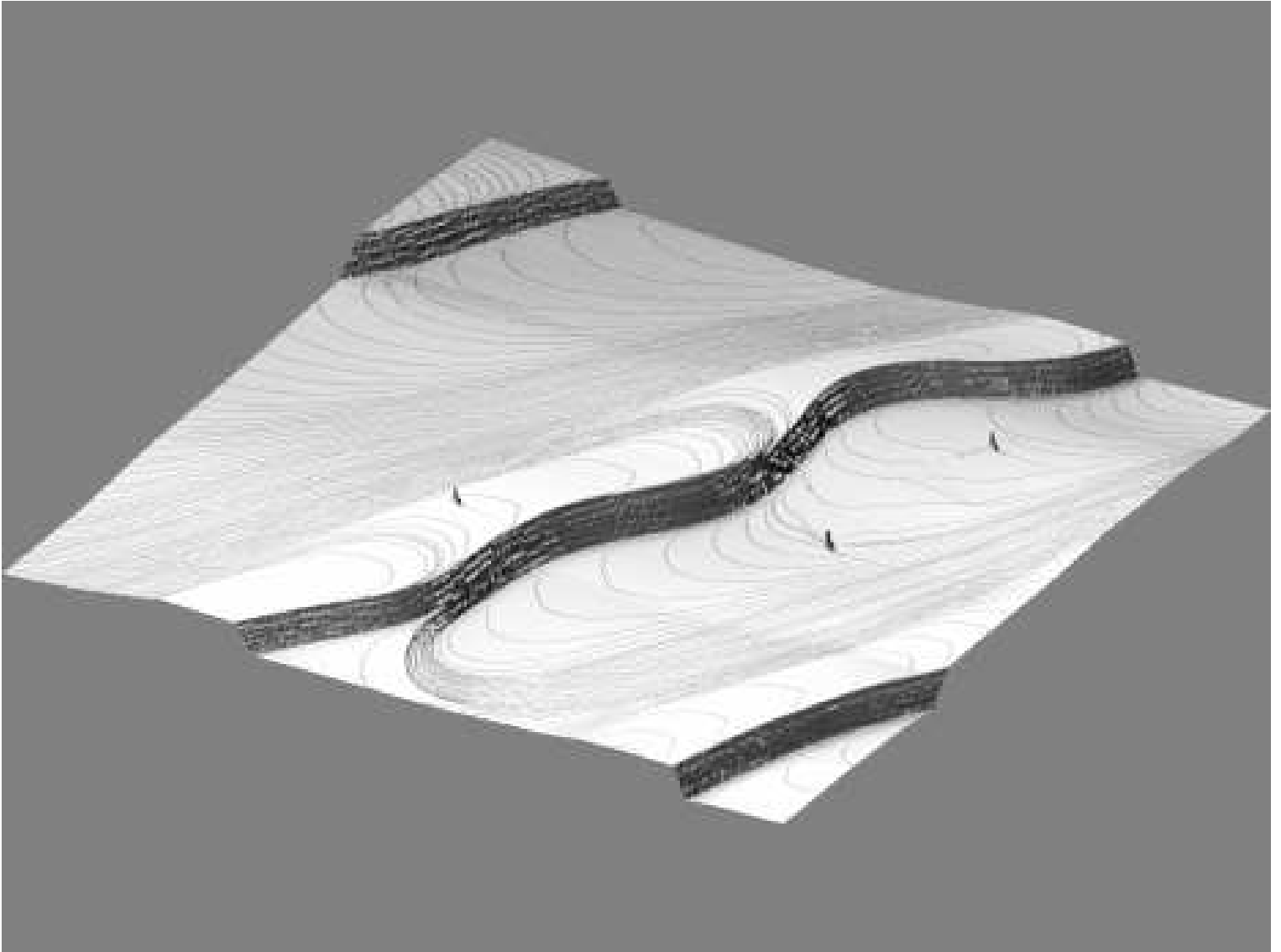
Morphogénèse spontanée de nanostructures

Croissance et bombardement ionique



haut: T. Michely, Aachen; bas L. Douillard, H.J. Ernst, Saclay

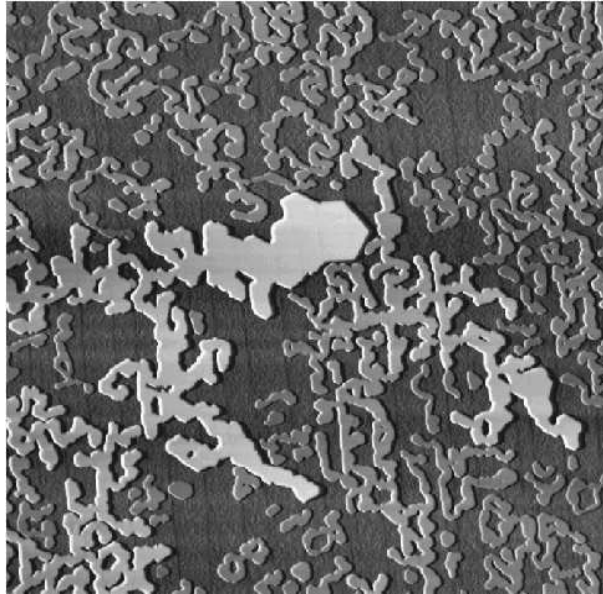
Électromigration:



K. Thürmer, E.D. Williams, Maryland

Stabilité?

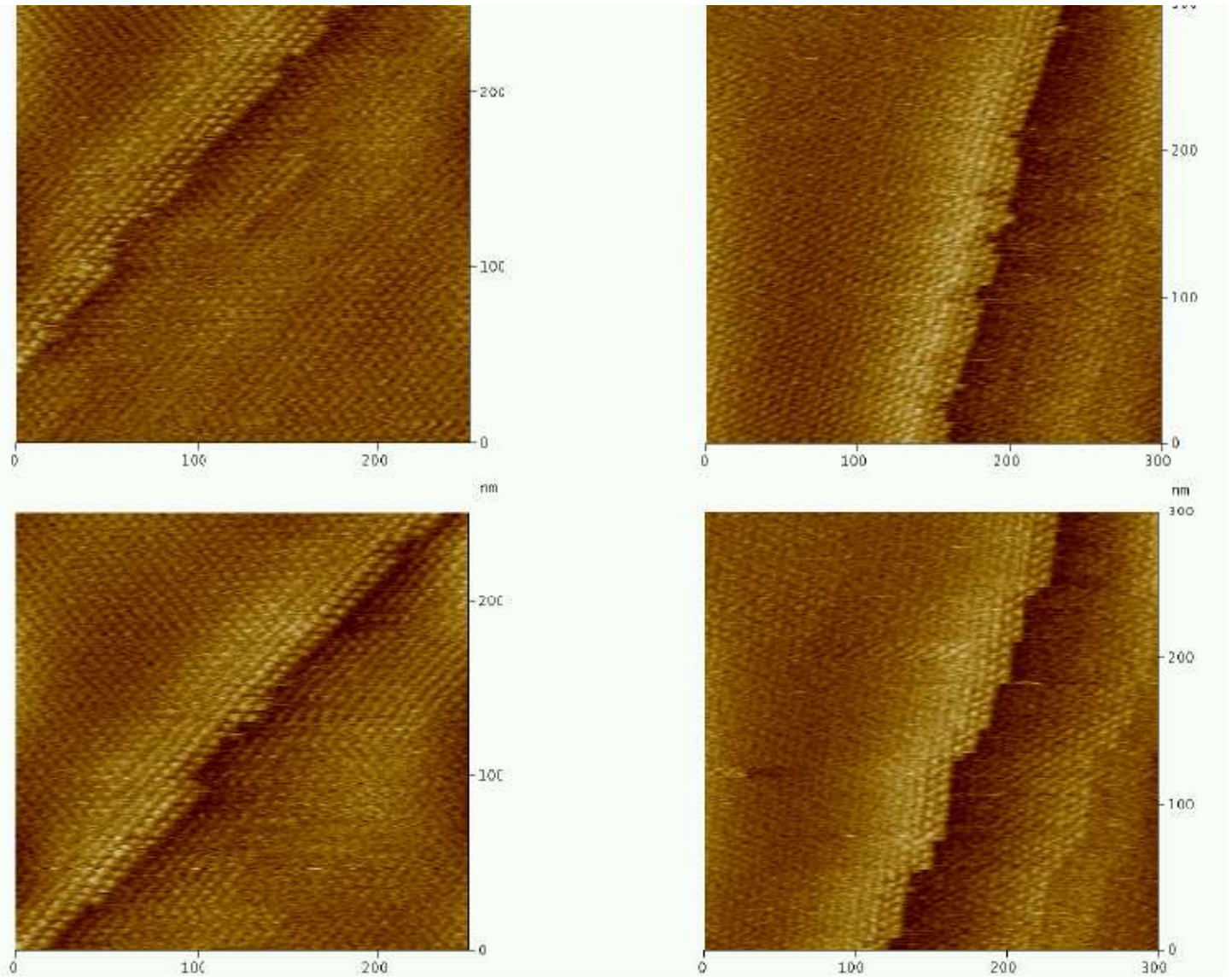
Démouillage des couches solides



K. Thürmer, E.D. Williams, Maryland

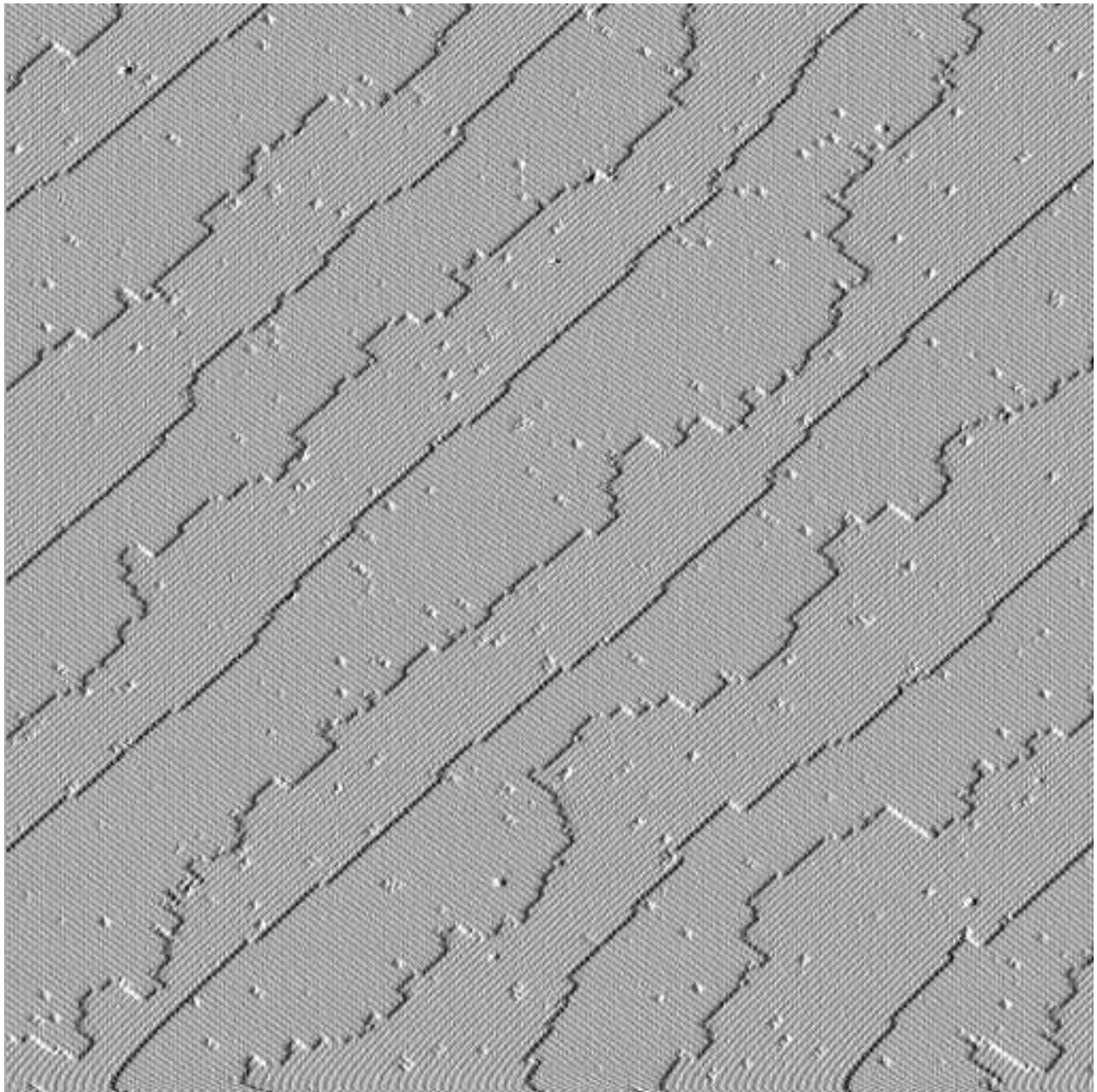
Relaxation de forme des nano-structures

Marches atomiques: Insuline



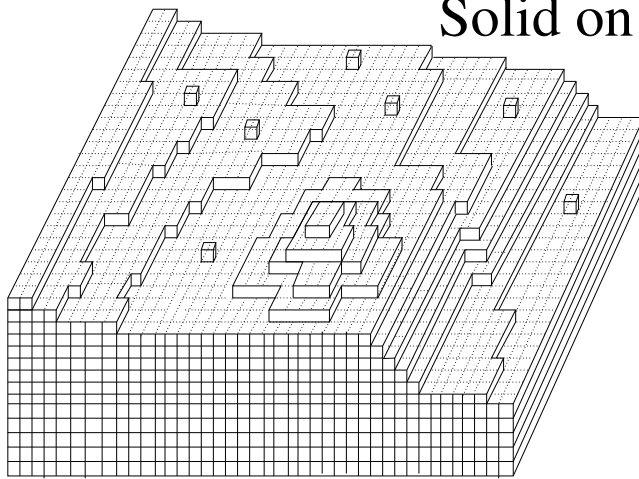
P. Vekilov, Houston

Si(100)

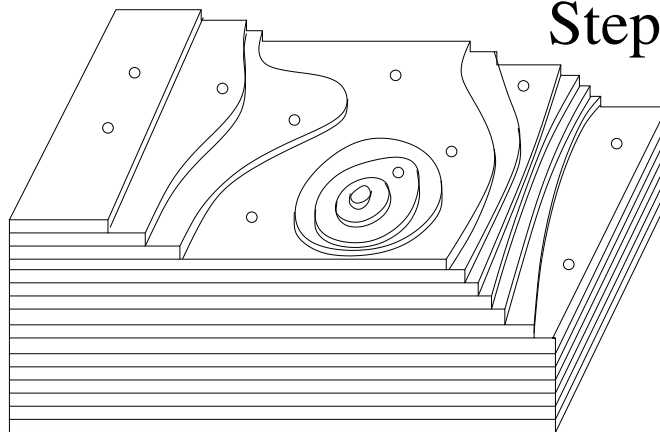


M. Lagally, Univ. Wisconsin

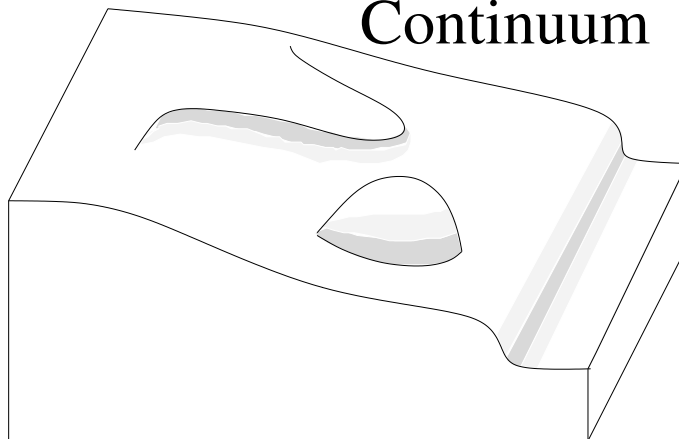
Solid on Solid



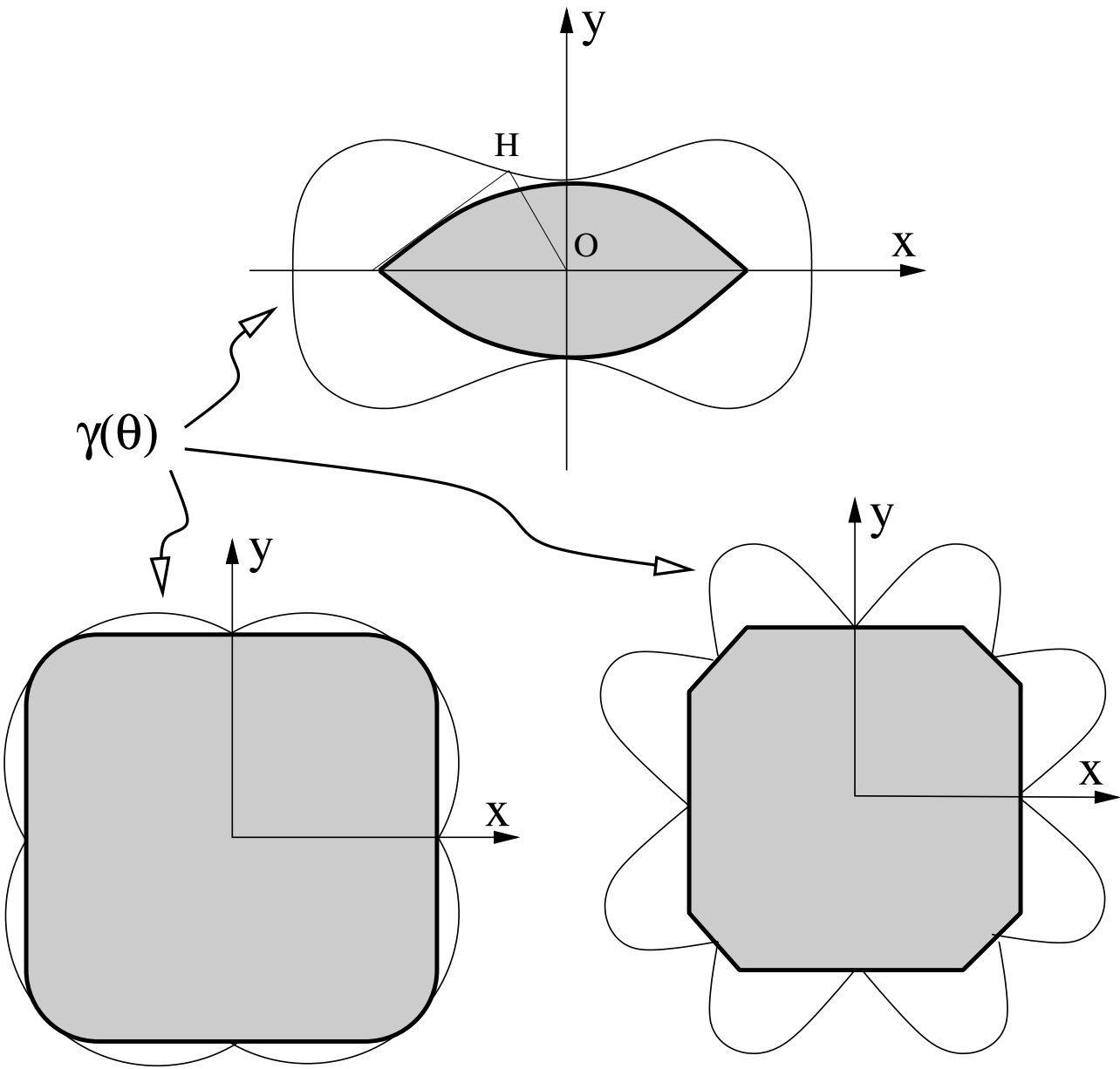
Steps



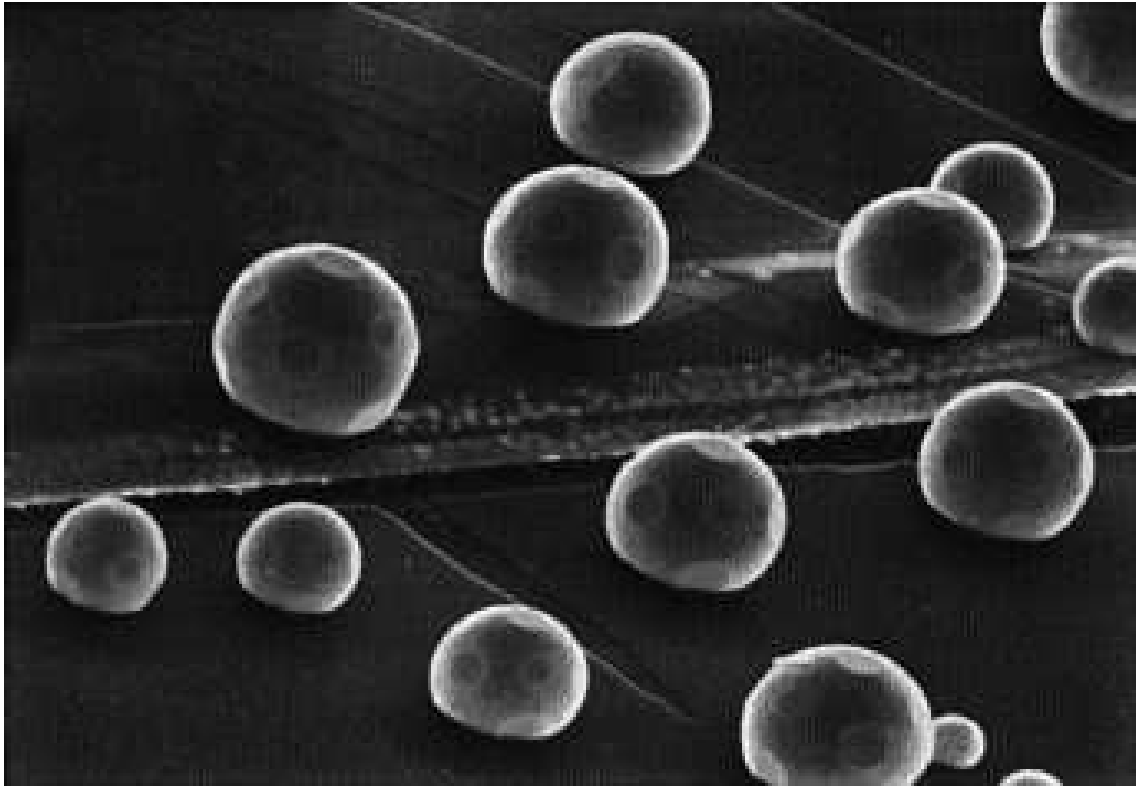
Continuum



Construction de Wulff

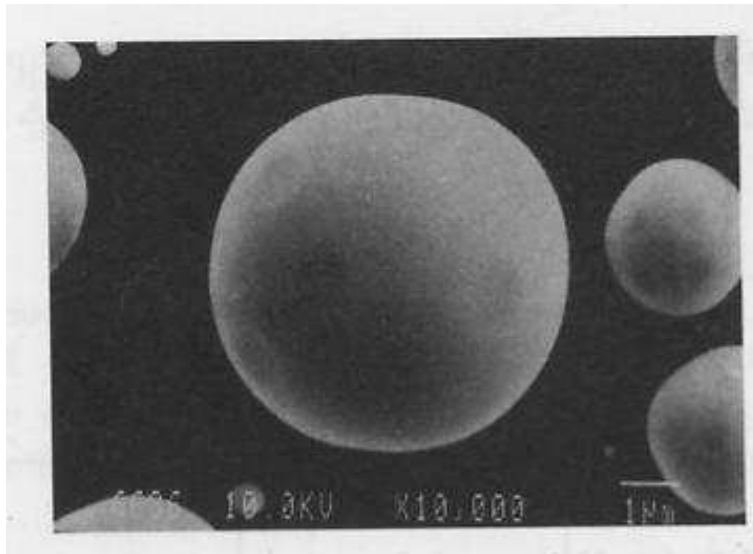


Mouillage Au/Graphite

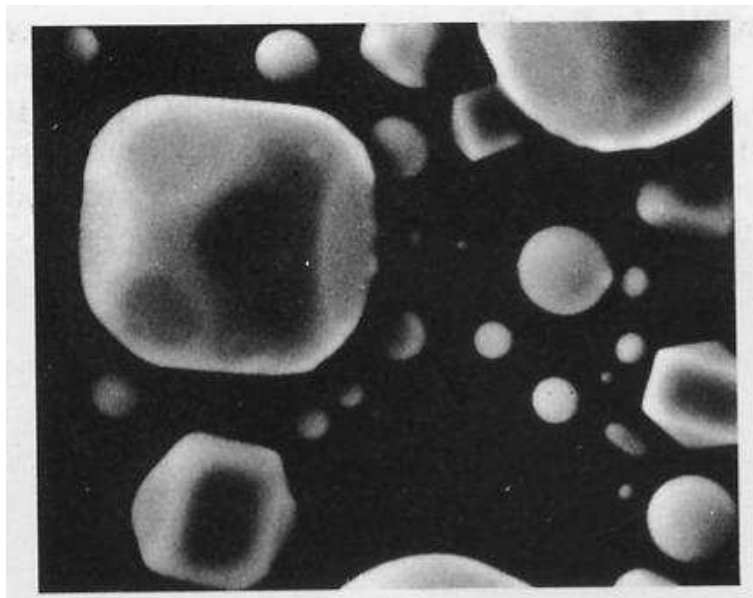


Heyraud, Métois, Marseille

Équilibre Sn 192°C ($T_M - 40^\circ\text{C}$)

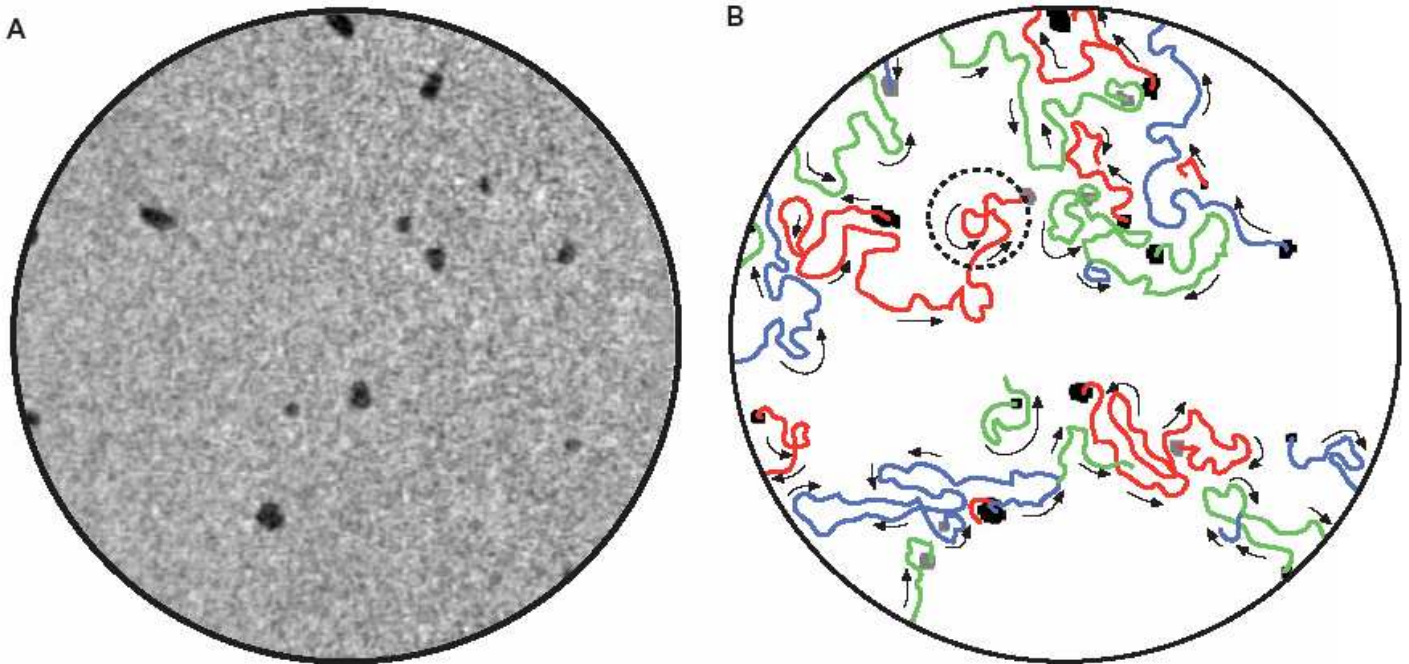


Croissance Sn 222°C ($T_M - 10^\circ\text{C}$)

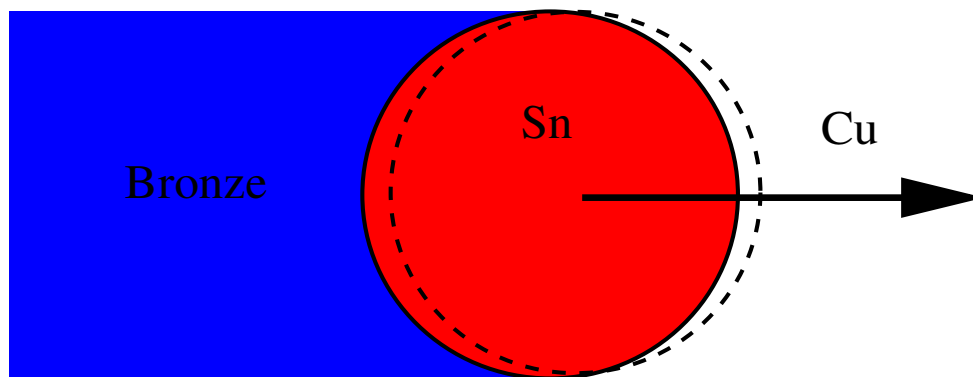


A. Pawlowska

Mouvement de clusters de Sn/Cu(111)



LEEM, $1.5\mu\text{m}$, 290K



Schmid, Bartelt, Hwang, Science Reports (2000).