

CPRE557 Computer Graphics

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Electrical and Computer Engineering (ECPE)

Construct Iron-atom Model by techniques of computer graphics



Fig1. Appearance of Iron

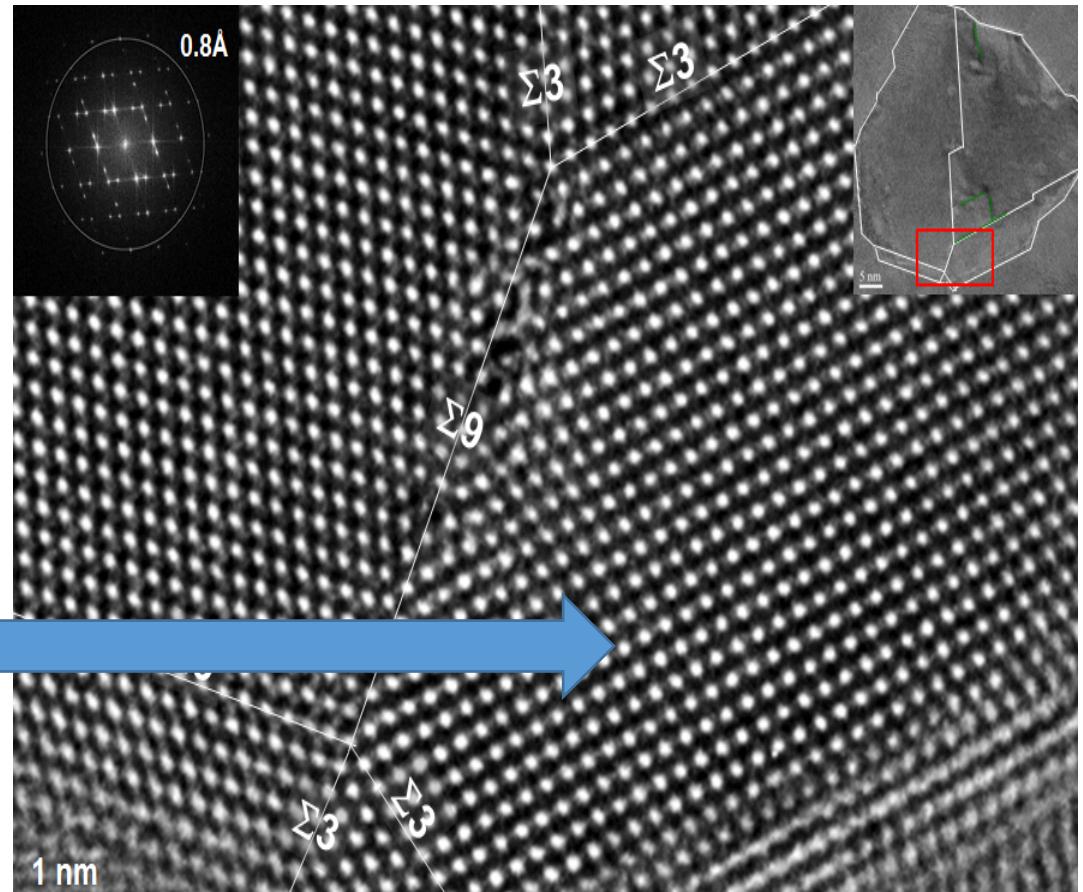


Fig2. Microstructure of Iron showing iron atoms

- Lattice : Arrangement of atoms
- To get a more explicit view:
<https://www.youtube.com/watch?v=uKpr-9vmgsc>

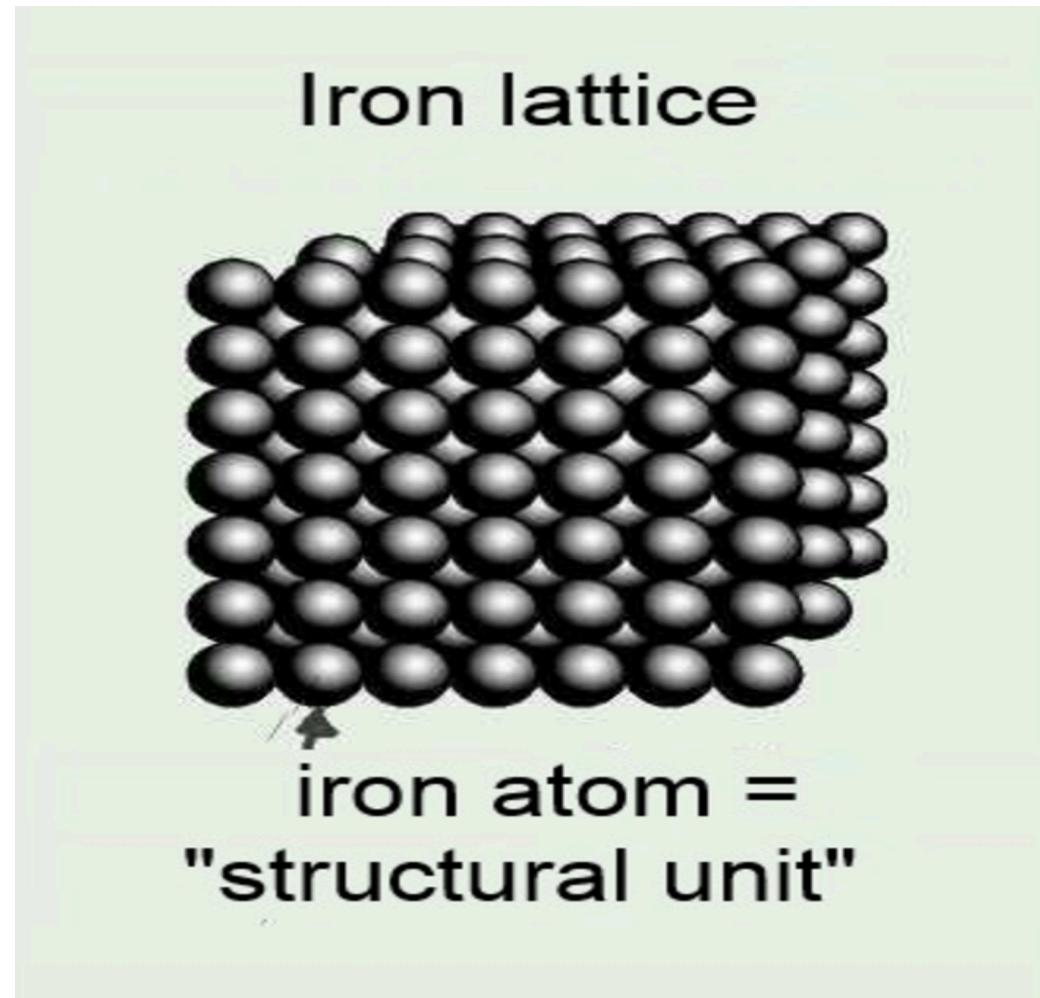


Fig 3. Lattice of Iron

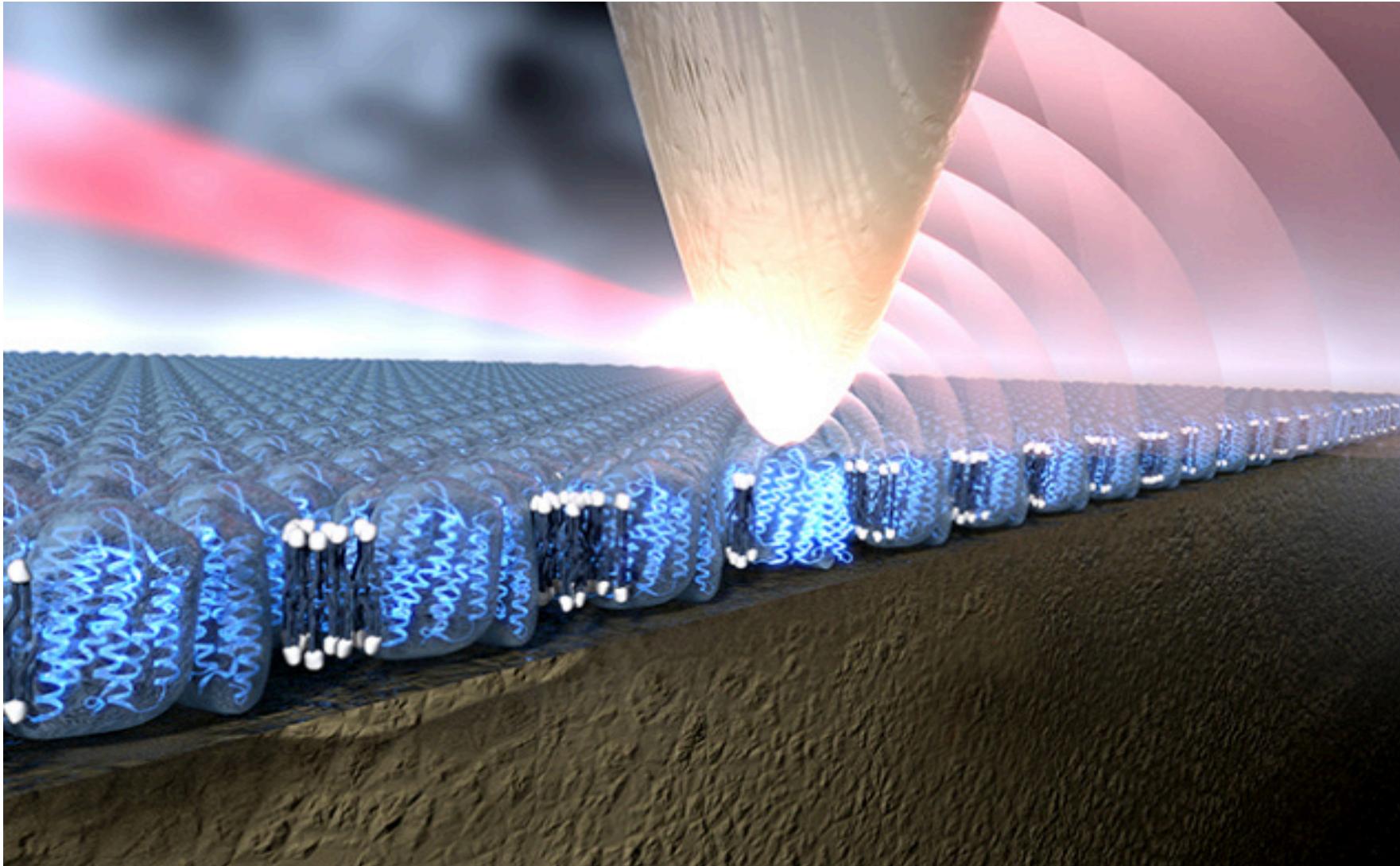


Fig4. Movement of Iron atom driven by nano-tip

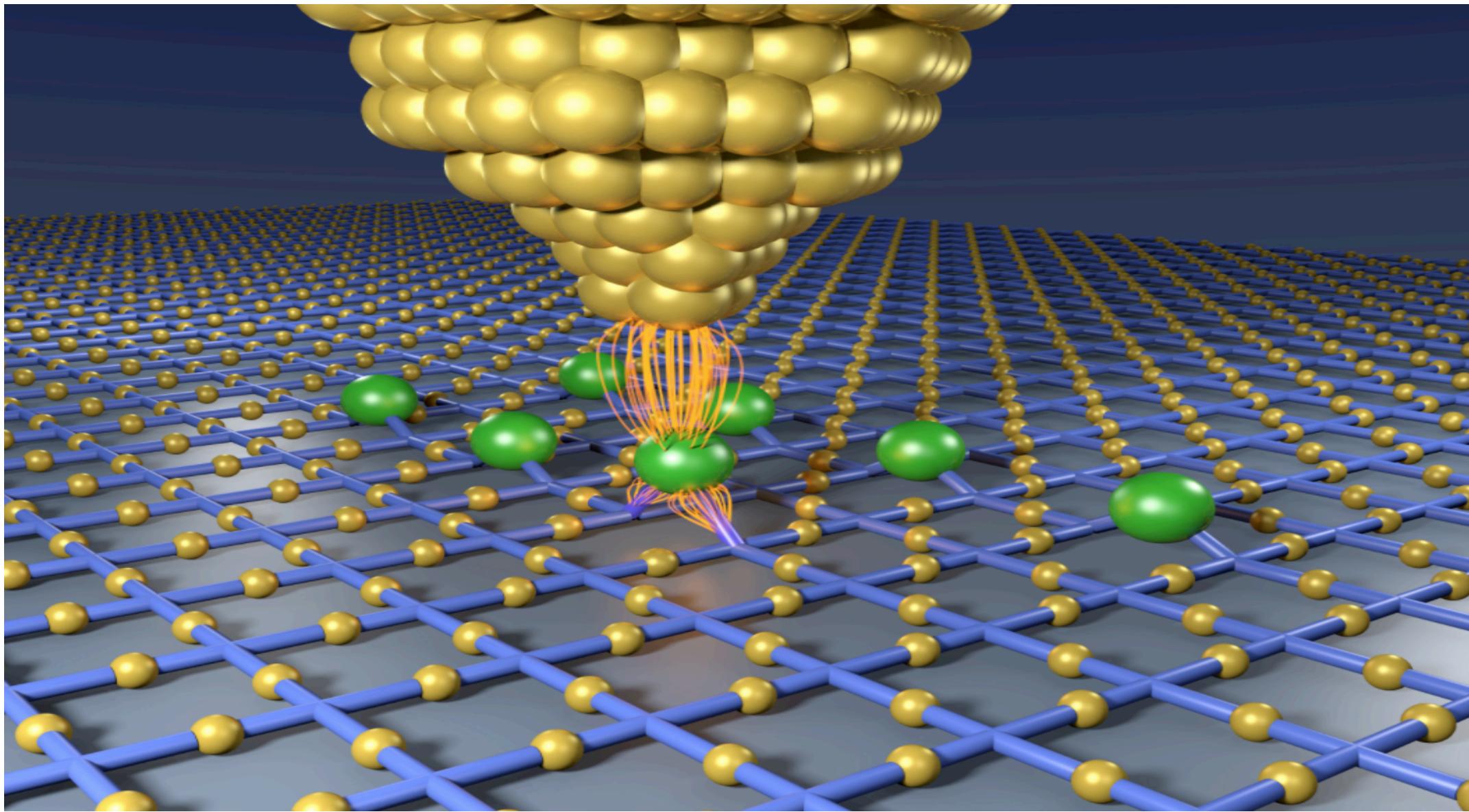


Fig5. Movement of Iron atom driven by nano-tip

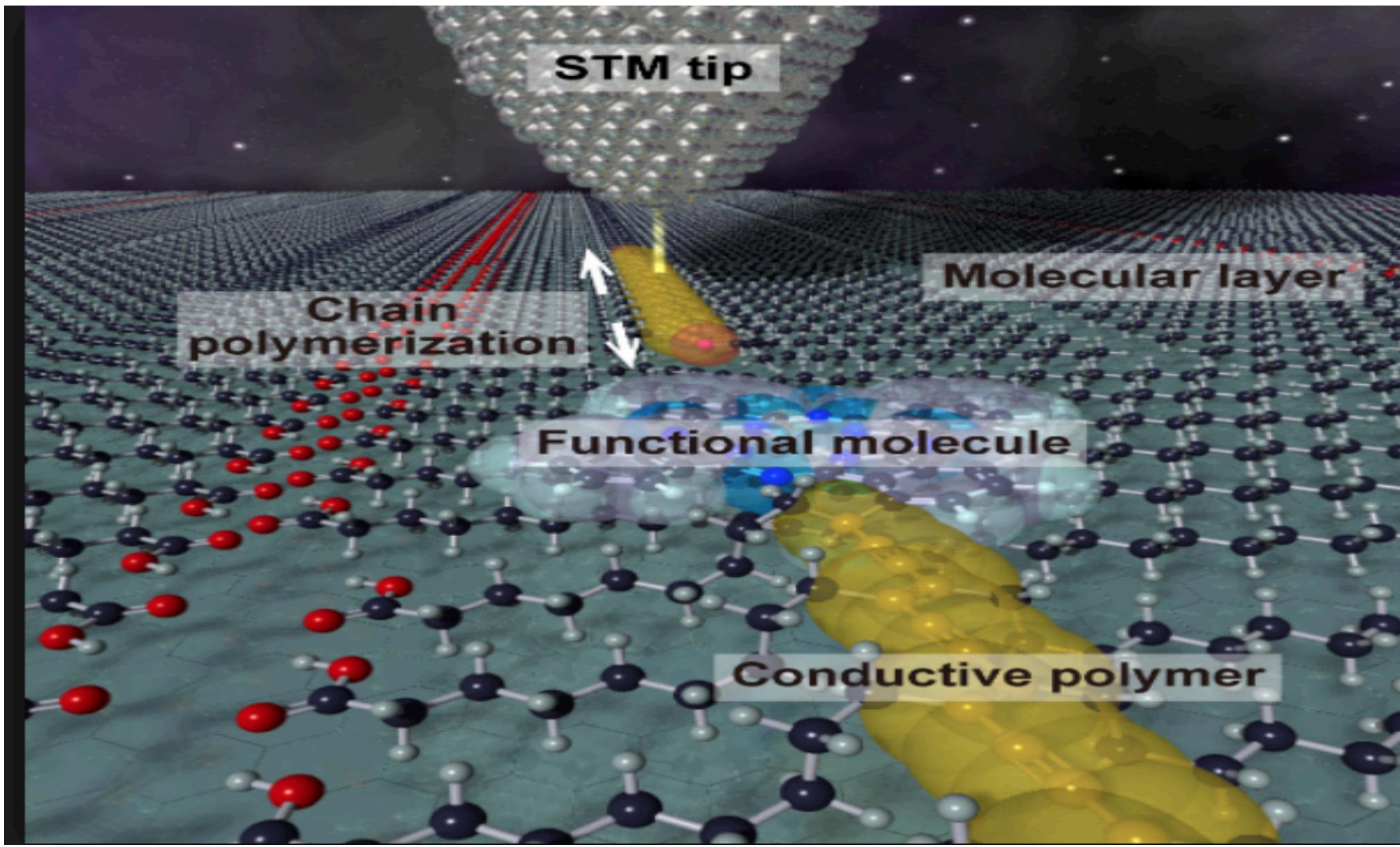
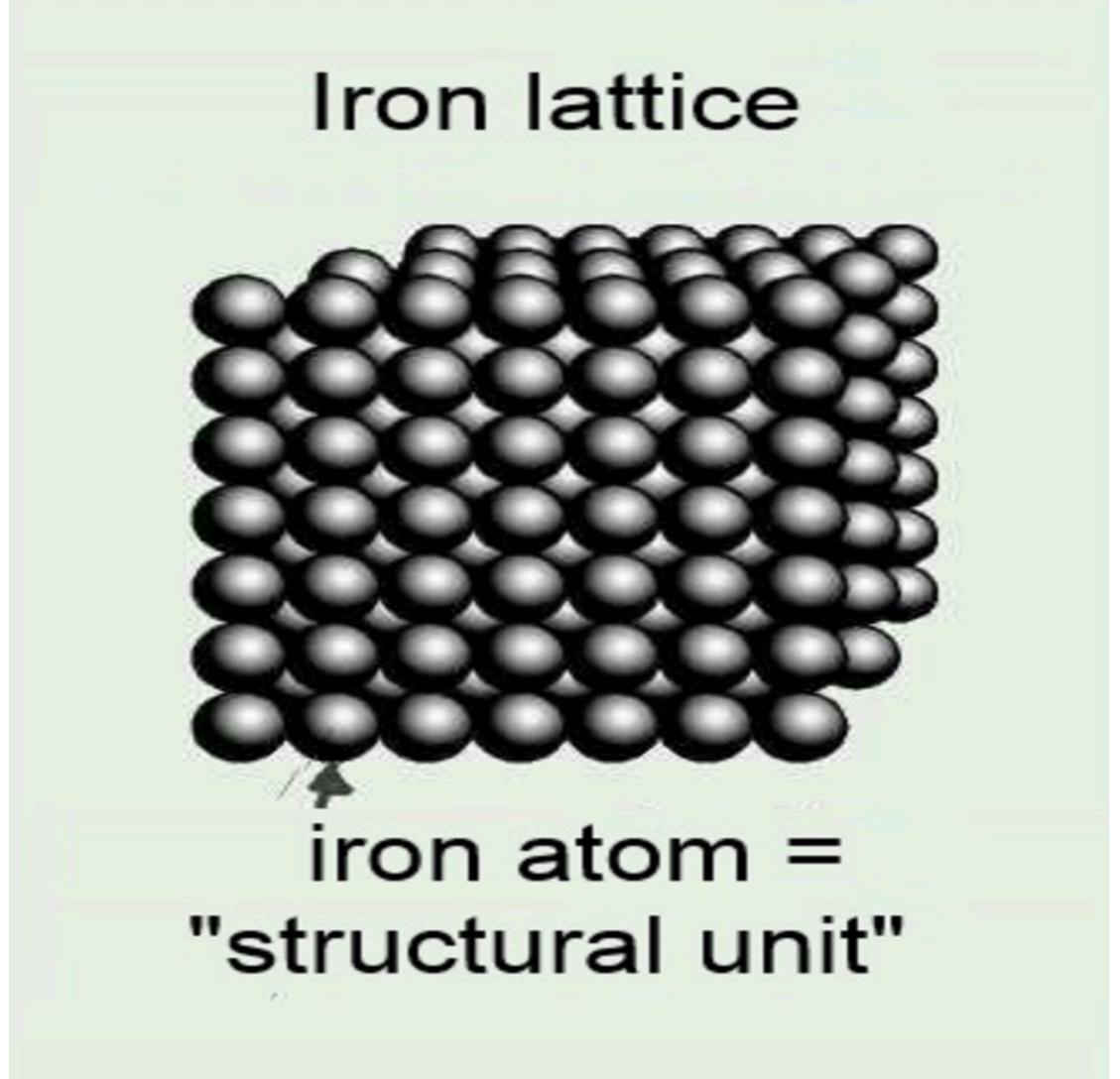


Fig6. Movement of Iron atom driven by nano-tip

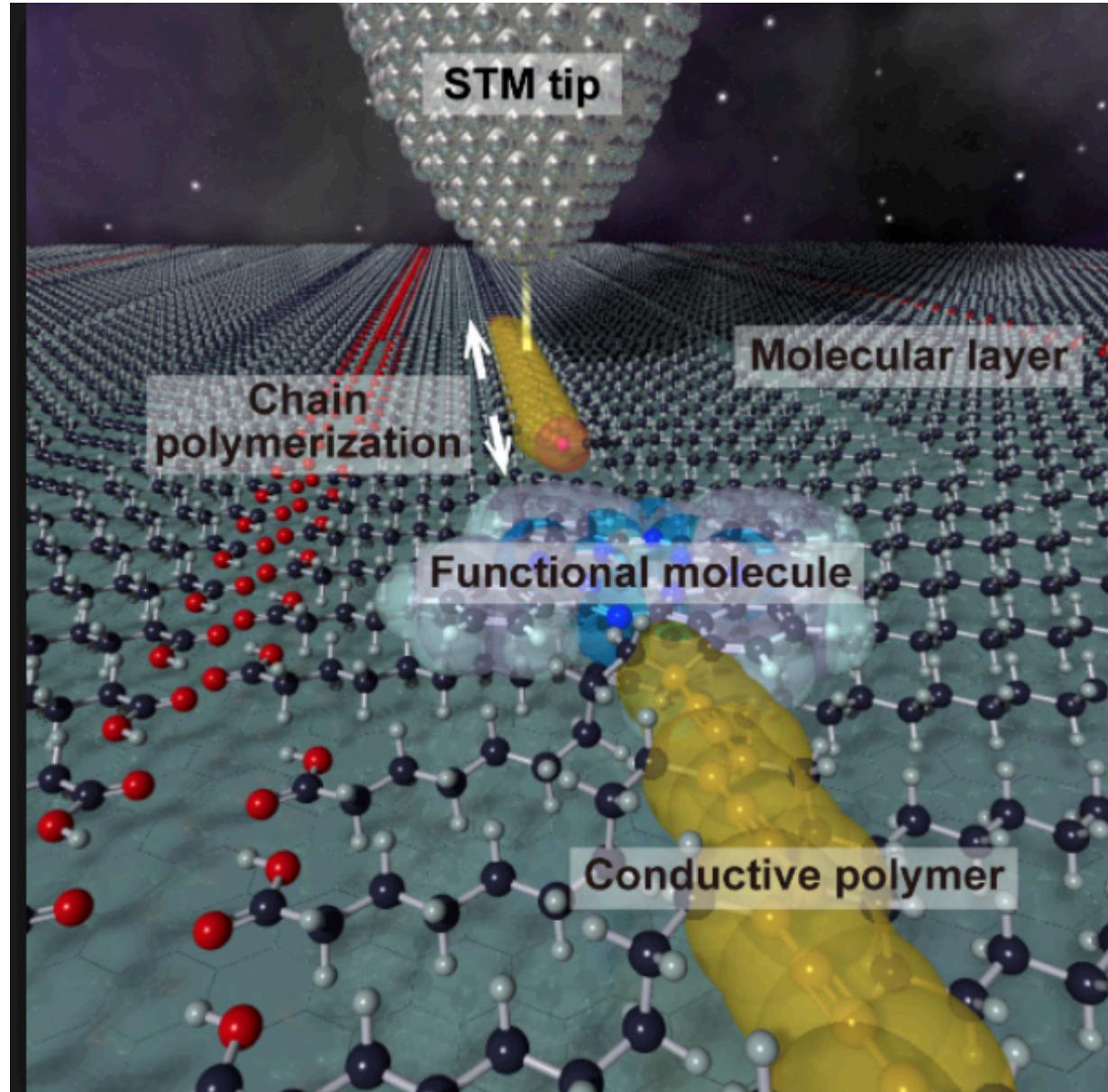
CG techniques used to build this model

- primitive rendering
- light and material simulation
- texturing
- Navigation
- animation

- primitive rendering
 - Hierarchical model or Multiple primitives
- light and material simulation
 - Combined light on surface
- texturing :
 - render with a metallic texture
- Navigation:
 - at least trackball navigation to give a 360 ° view.



- Animation
 - to mimic atom movement on the iron lattice surface



Thanks