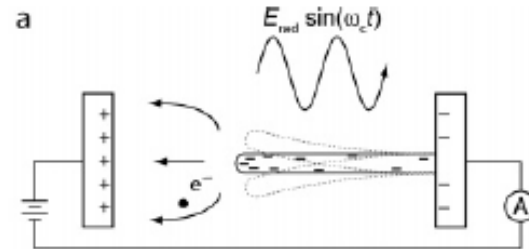
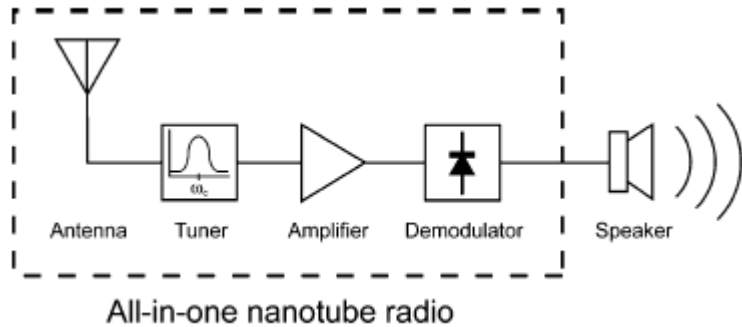
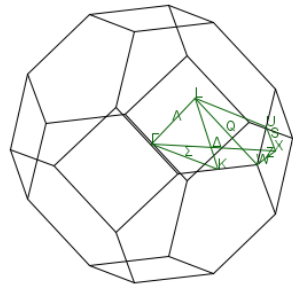
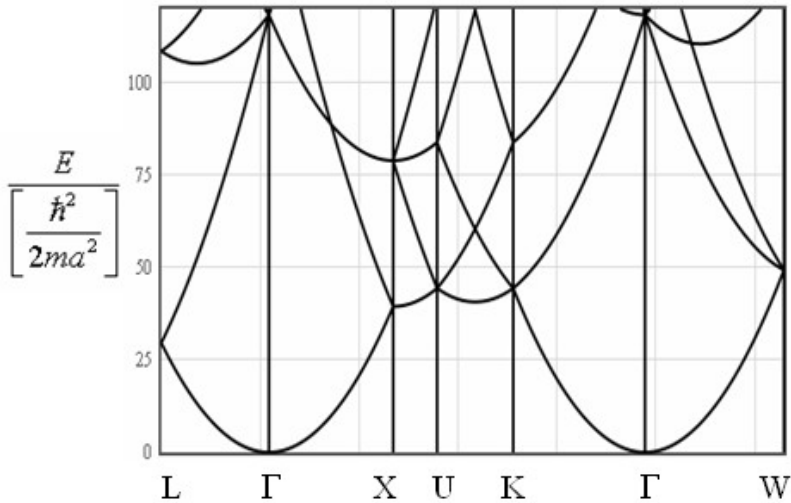


Nanoradio & TEM



- antenna: nanotube
- tuner: resonance frequency of the tube can be varied
- amplifier: field emission current of nanotube gets modified by vibrations
- detuner: non-linear behavior of field emission current
- <http://pubs.acs.org/doi/suppl/10.1021/nl0721113>

Silicon – free electron

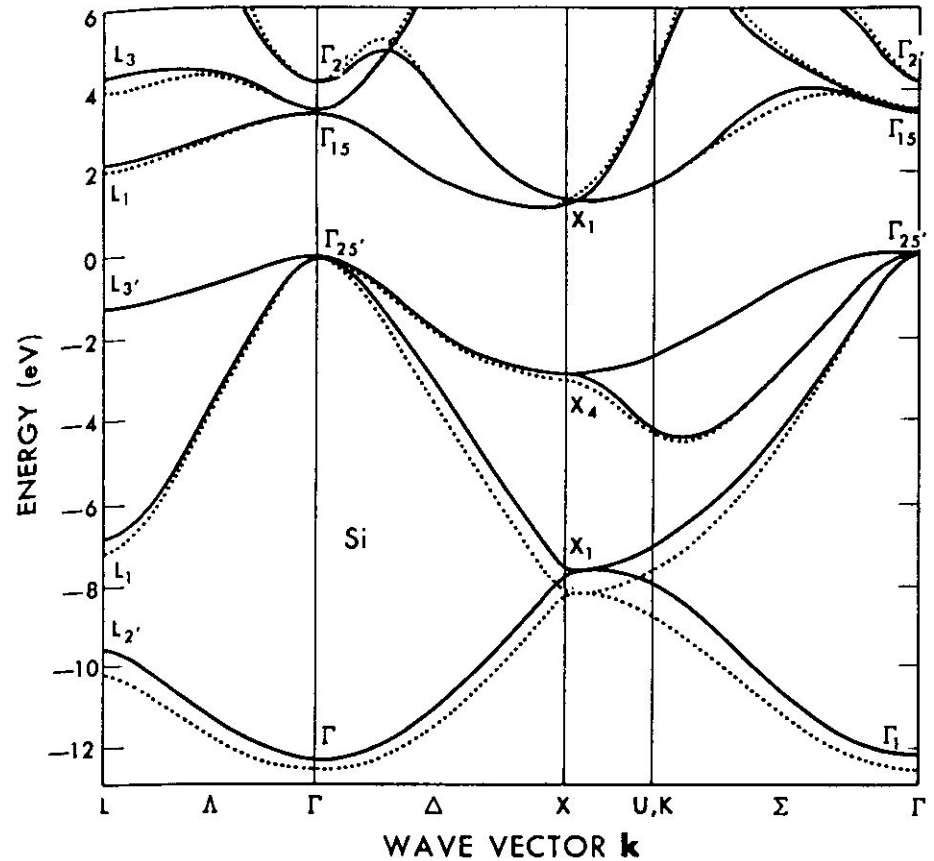


Energy gap: 1.12 eV
(indirect)

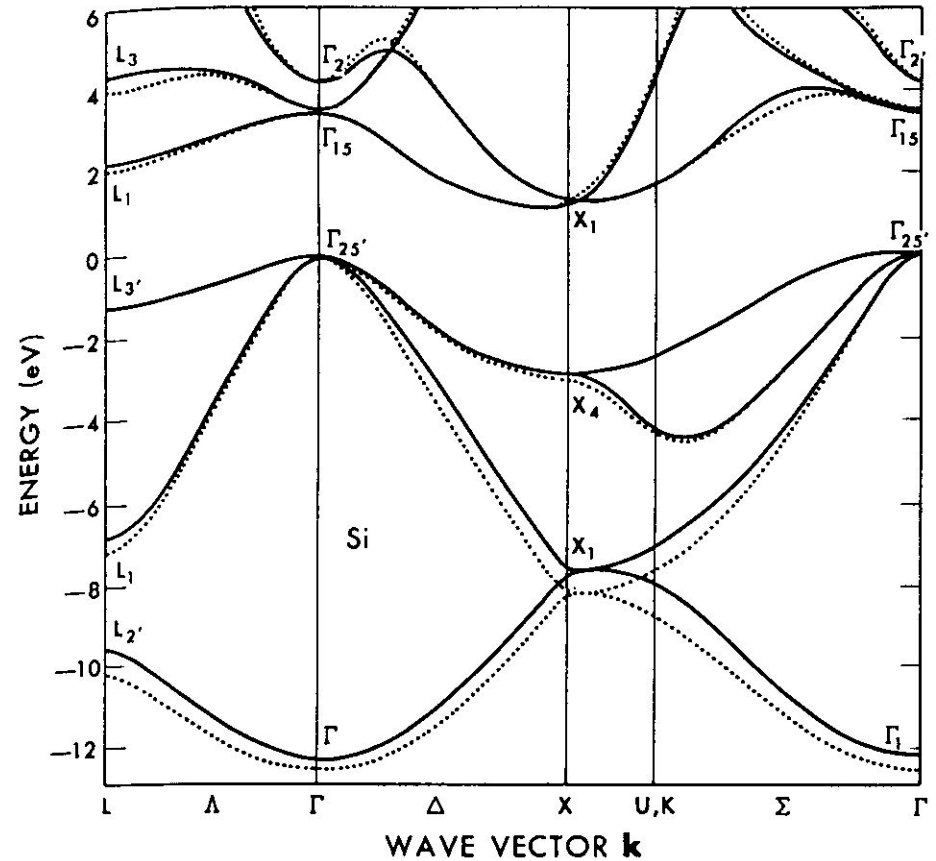
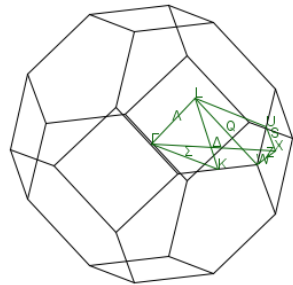
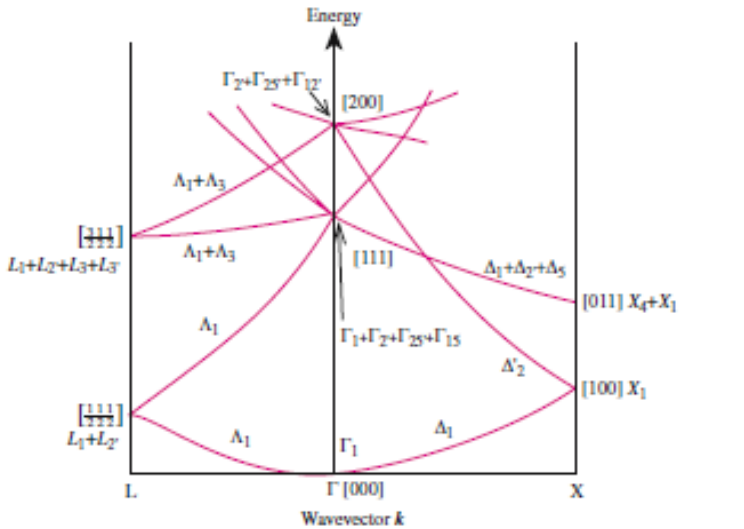
Effective mass – valence band

hh 0.5 m_e

lh 0.2 m_e



Silicon – free electron



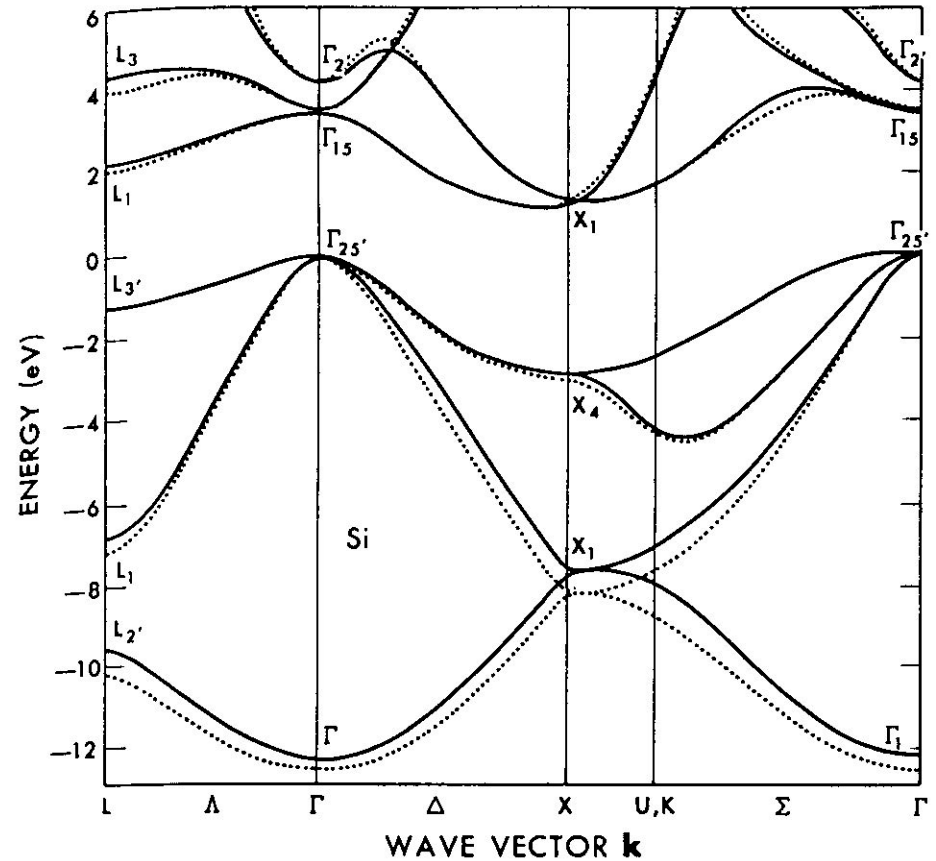
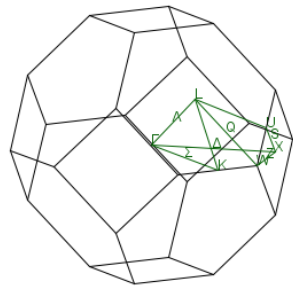
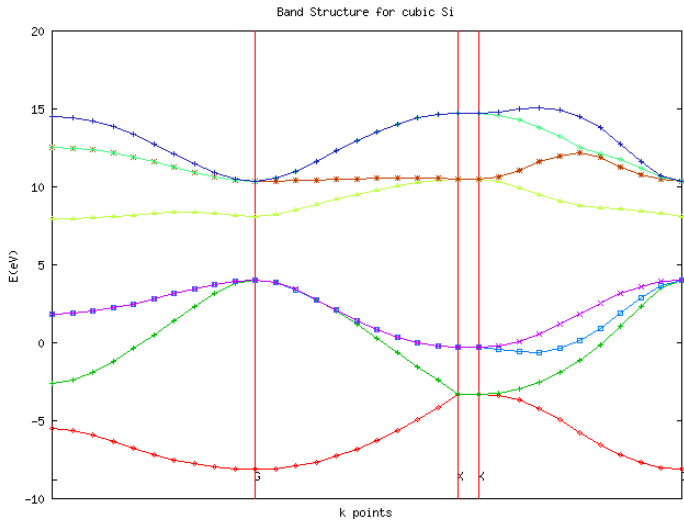
Energy gap: 1.12 eV
(indirect)

Effective mass – valence band

hh 0.5 m_e

lh 0.2 m_e

Silicon – tight binding



Energy gap: 1.12 eV
(indirect)

Effective mass – valence band

hh 0.5 m_e

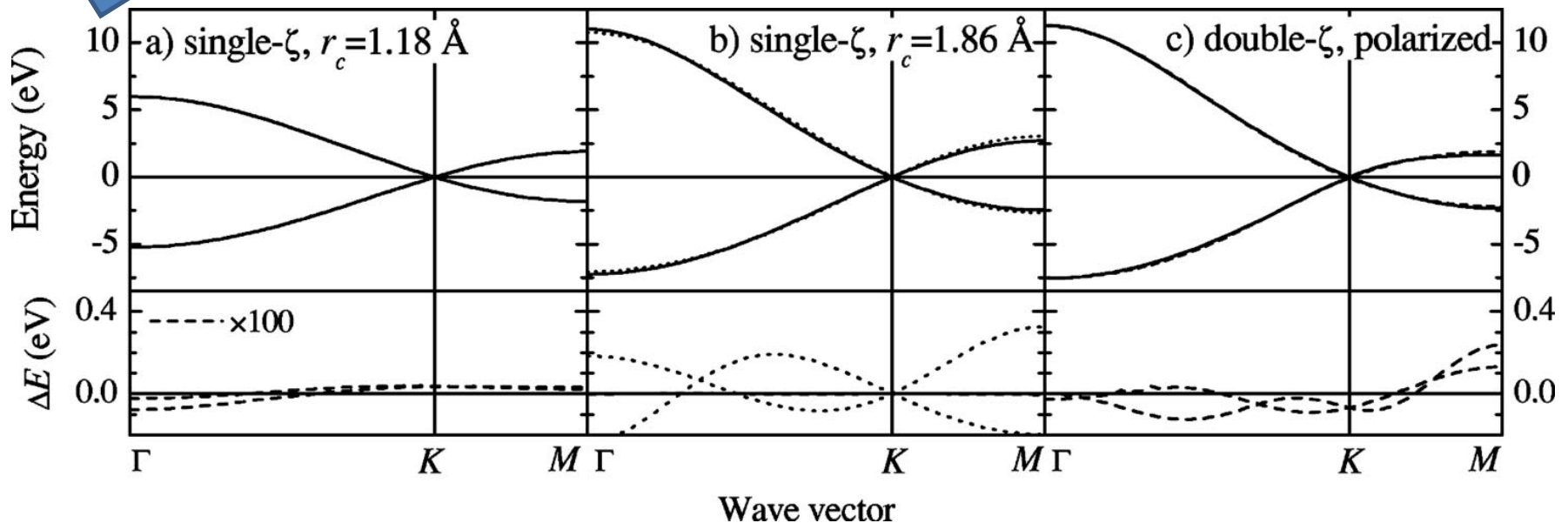
lh 0.2 m_e

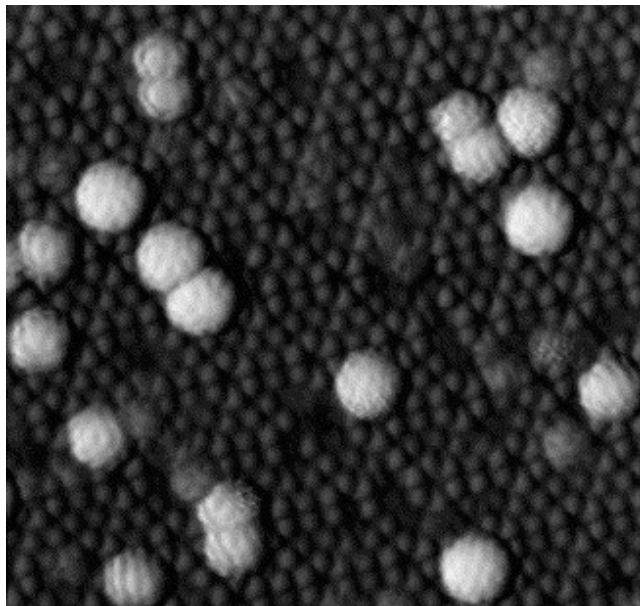
PHYSICAL REVIEW B 66, 035412 (2002)

Tight-binding description of graphene

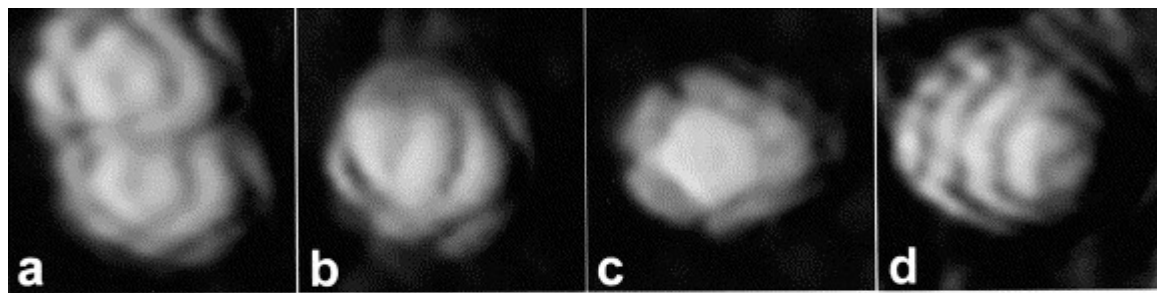
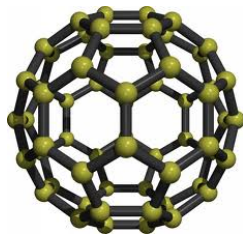
S. Reich, J. Maultzsch, and C. Thomsen

Körperphysik Technische Universität Berlin, Hardenbergstrasse 36, 10





Scanning tunneling microscopy image of the Si(111)(7×7) surface with a small coverage of C_{60}



Comparison of experimental STM images of individual molecules with calculated shapes of C_{60} molecular orbitals (Kohn-Sham wave functions!)

