Physics 240/250: Einstein’s Century  
Spring 2005

Week of 4 April:
Required reading: Bernstein book: continue last week’s reading, and read Ch. 15.
Supplementary reading: Ida Noddack’s article proposing the existence of nuclear fission:  
Fun: http://www.spaceflight.nasa.gov/gallery/video/station/expedition6/qtlow/tea.mov  
for another liquid-drop system.

Problems #12 due at start of class on 14 April:
A. a. Assuming the energy gap in pure silicon is 1.1 eV and that the Fermi energy lies in the  
middle of the gap, calculate the occupation probability at temperature 295 K for an electron state  
at the top of the valence band, and for a state at the bottom of the conduction band.
b. Repeat at temperature 395 K and comment.
B. Work Problems 14.6, 14.10, and 15.5 in Bernstein.