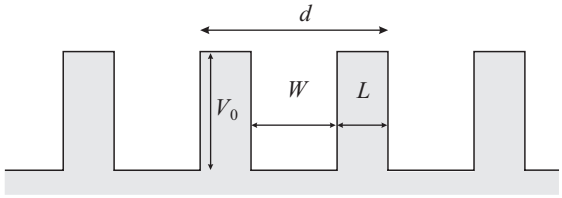
Physics of Semiconductors
Exercise (4/15)

This is just for your exercise, not your homework. But of course you can submit your answers to me. Partial answer is also OK. There is no deadline until that of the report of this lecture.

In the report submission (I will prepare the problems separately), you can replace some of your answers with those for these problems I will pose you in the end of every lecture hour.

In the submission, the date of the exercise, the number of the problem, you ID number, your name should be specified. The materials can be on papers, real mails, email, anything.



1. Consider the Kronig-Penny potential drawn above. Numerically calculate the lowest four bands in energy and obtain the effective masses. You can assume the ratios between L, W, and V_0 at your convenience.

2. Explain why the effective mass of the electrons in crystals can be lighter than that of electrons in vacuum.