Reading guide 2014

Book chapters covered in the lectures and/or exercises

This guide will be updated as we go along.

Chapter 1: Everything except 1.7.3, 1.7.4 and 1.8.5. Most of this material is basic quantum mechanics which also is covered in previous courses. The concept of density of states in different dimensionalities is especially important.

Chapter 2: 2.1-2.4, 2.6.2-2.8.4 Phonons you should read as an orientation, mainly to understand the Raman part of the optics lab. Bloch functions and the concept of band formation in periodic potentials are especially important.

Chapter 3: 3.1, 3.3, 3.4.1-3.4.4, 3.5.1-3.5.2, 3.6.1-3.6.2, 3.10,

Chapter 4: 4.1-4.6, 4.9,

Chapter 5: 5.1-5.2, 5.4-5.5 (not 5.5.2), 5.7 (not 5.7.2). The idea of transfer–matrices in 5.2 is included - have a look at the examples in the section so that you see how transfer matrices are used. 5.3 contains some more on T-matrices. Davies will refer back to it in for instance sec. 5.5, but you don’t have to read it.

Chapter 6: 6.1, 6.3, 6.4 (except 6.4.2 and 6.4.7-6.4.9), 6.5 (except 6.5.1), 6.6 (except 6.6.1 and 6.6.2).

Chapter 7: 7.1-7.2.3, 7.7.1, 7.7.2 (as an orientation), 7.8,

Chapter 8: 8.1 (should be known from earlier courses), 8.3 (should be known from earlier courses), 8.5.2-8.7

Chapter 10: 10.4, 10.4.2, 10.4.5, 10.7 You should know what an exciton is.