



PY4118 Physics of Semiconductor Devices - 2017

Assignment #1

Crystals & Symmetry

- 1.1 [6 marks] Consider a crystal with mirror (or reflection) symmetry along all three axes
- a) [3 marks] What are the three reflection matrices, labelled for each axis of symmetry?
 - b) [3 marks] Apply the symmetry to the dielectric susceptibility tensor and provide the solution
- 1.2 [6 marks] Consider a crystal with 2 fold rotational symmetry along all three axis (point group 222)
- a) [3 marks] What are the three rotation matrices, labelled for each axis of symmetry?
 - b) [3 marks] Apply the symmetry to the dielectric susceptibility tensor and provide the solution

Due: Start of class, Tuesday, September 19, 2017