

## HW2\_3

1. The electron density for the 2P state of the hydrogen atom is given by:

$$n(\vec{r}) = \frac{r^2}{64\pi a_0^5} e^{-r/a_0} \sin^2 \theta$$

Where  $r$  and  $\theta$  refer to a spherical coordinate system. Determine the atomic form factor for this state. In your determination, you may assume that the  $z$ -axis is defined by the reciprocal lattice vector.

2. Work problem 5 at the end of chapter 2.
3. Work problem 4 at the end of chapter 2.