

Polarization

FYS2150 Lab Report

Nicholas Karlsen

May 28, 2018

Abstract

Studying the properties of linearly and circularly polarized light and testing how well the properties match up to theoretical predictions.

1 Introduction

2 Theory

3 Experimental Procedure

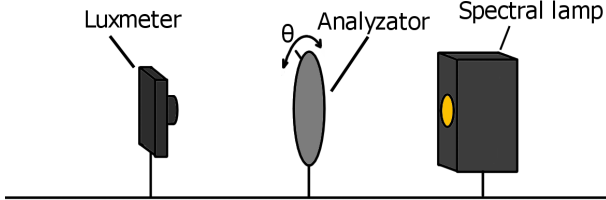


Figure 1: Apparature to test the polarization of light emitted from a spectral lamp using a polarization filter with variable angle θ as an analyzer and measuring the intensity of the filtered light using the luxmeter.

4 Results

The intensity measurements presented in table 1, where light from a spectral lamp is passed through a single polarization filter has a standard deviation of 19, which is used as the estimated uncertainty for further measurements made with the luxmeter.

Table 1: Measured intensity when passing unpolarized light through a single polarization filter, θ denoting the angle of the filter. Aparature depicted in Fig. 1

θ [deg]	Intensity [Lux]
0	705
-10	701
-20	706
-30	718
-40	726
-50	734
-60	743
-70	751
-80	756
-90	759
10	703
20	713
30	719
40	726
50	736
60	745
70	753
80	758
90	754

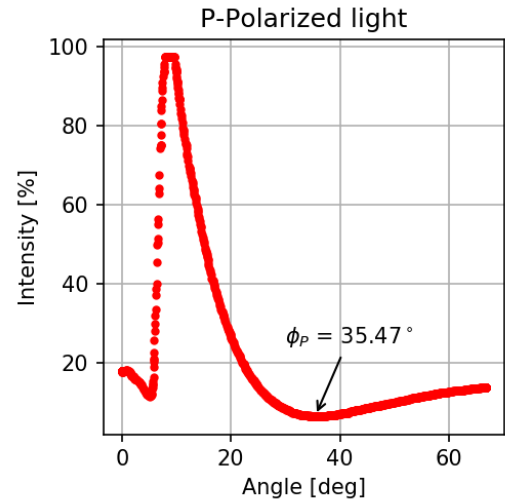


Figure 2: Intensity profile due to p-polarized light, where ϕ_P denotes the Brewster angle.

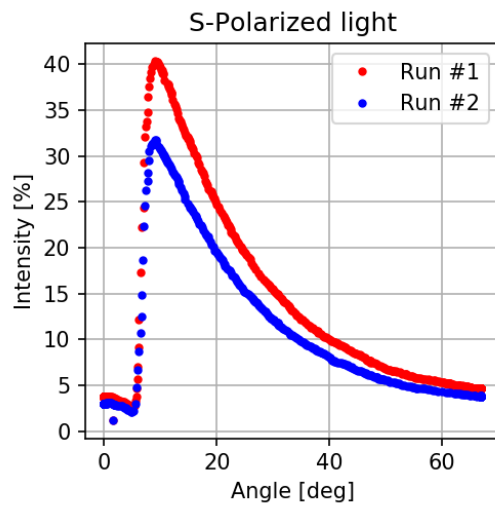


Figure 3: Intensity profile due to p-polarized light from two separate attempts of the experiment.

5 Discussion

6 Conclusion