

# PHYC30170 Physics with Astronomy and Space Science Lab 1; An Investigation of Surface Plasmon Resonance

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The aims of this experiment were to determine the angle of plasmon extinction using the Kretschmann configuration and to investigate the dependence of surface plasmon resonance on the wavelength of the incident light and the thickness of the silver foil. [NOT FINISHED]

## I. INTRODUCTION

Points to cover: what are surface plasmons, what are the applications of surface plasmon resonance/extinction

Oscillation of electrons at the boundary between a metal and a dielectric medium.

## II. THEORY

### A. Excitation of Free Electrons

### B. Surface Plasmon Waves

### C. Apparatus

## III. METHODOLOGY

### A. Apparatus Setup

#### 1. Motor Programming

Be salty about things being labelled incorrectly.

#### 2. Developing an Algorithm for Data Collection

Note efficiency

#### 3. Laser Alignment

## B. Data Collection

#### 1.

## IV. RESULTS AND ANALYSIS

### A. Varying Laser Wavelength

### B. Varying Metal Thickness

### C. Anomaly found during Red Laser Runs

## V. CONCLUSION

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