

Name

TITLE OF EXPERIMENT

**INTRODUCTION TO INTERFEROMETRY: The
Michelson and Morley/Fabry Perot Experiments**

MODERN PHYSICS LAB

PHYS 393 COURSEWORK

REPORTING SHEET

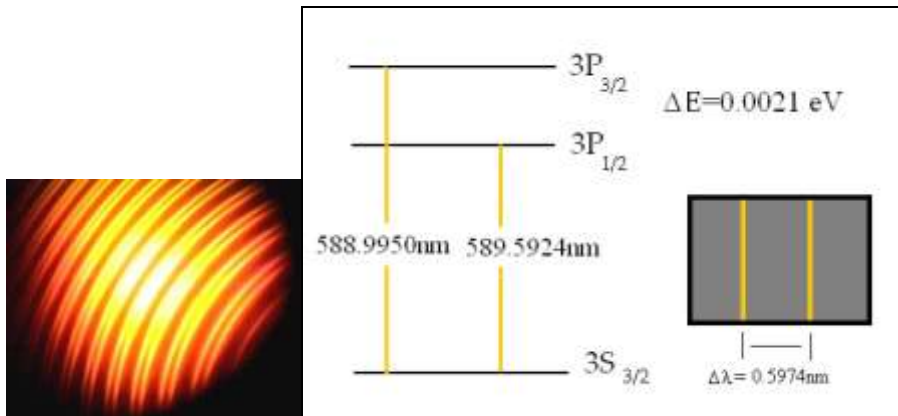
PART A: SCIENTIFIC KNOWLEDGE AND PLANNING	
Aim:	
Methodology- Draw your set up ,explaining the use of the different components you will use to achieve your aim- both for part A and B <u>What is interferometry? and why scientist use it?</u>	5

<p>What was the idea of the ether? and why did scientists in the 19th century introduced it?</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <p>What was the first experiment to show that there is no ether?</p> <ol style="list-style-type: none">1. The Fabry Perot Experiment2. Young's Double Slit experiment3. Milikan's oil drop experiment4. The Michelson and Morley experiment5. Both 1 and 4 <p>Explain briefly, why in conclusion there was no ether based on the principles of interferometry.</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	8
<p>If one fires electrons through a double slit, what pattern would they observe on the screen behind the slit? And why is that?</p>	6

If now a camera is placed at the slit, would the pattern change? Explain.

Using a Fabry Perot Interferometer one can observe the so called Sodium D-Lines.

6



Explain the origin of the double lines. How is such a doublet formed? Discuss it within the theory of spin orbit coupling.

<p>Discuss the basics of interferometers in astronomy.</p>	<p>3</p>
<p>Which factor you suggest should be controlled in order to make sure that your results are accurate and reliable?</p>	<p>2</p>

PART B: OBTAINING EVIDENCE	
<p>Your data. Use the correct units and convert appropriately.</p>	

PART C: ANALYSING AND CONSIDERING YOUR EVIDENCE

Graph (use graph paper)

Calculations

My evidence leads to the following result.

Compare your results with theoretical values.

PART D: EVALUATION [10 MARKS]	
What was good or bad about the experiment you did was ...	2
Some ways you could improve the experiment were...	2
You had the following anomalies.	2
The explanation for your anomalies was	2
You believe my evidence is reliable/unreliable for the following reasons.	2