

Interferometry

Due Jul 22 at 11:59pm **Points** 10 **Questions** 4 **Available** Jul 19 at 12am - Jul 22 at 11:59pm 4 days
Time Limit None

Instructions

You have one attempt at the quiz, please make sure to read the material before taking the quiz. Any numerical answer should be rounded to the hundredths place (second decimal).

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	28 minutes	1 out of 10 *

* Some questions not yet graded

Score for this quiz: 1 out of 10 *

Submitted Jul 21 at 12:11am

This attempt took 28 minutes.

Question 1	Not yet graded / 5 pts
<p>List at least 2 sources of error from the interferometry lab. Include an explanation of their causes and whether or not it is avoidable.</p> <p>Your Answer:</p> <p>Lack of precision when aligning the emitter and receiver. Imperfect "prism". Imperfect metal mirrors.</p>	

Question 2	Not yet graded / 2 pts
<p>Describe what you observed for the demonstrations of the Law of Reflection and refraction in detail.</p> <p>Your Answer:</p> <p>There was a few degrees difference between the theoretical and observed angles of reflection and refraction.</p>	

By taking the distances at the maximum detected wave and inputting them into Excel we were able to graph the linear relationship of constructive interference. The slope of the line was the wavelength of the transmitted wave.

Question 3**0 / 2 pts**

In the Michelson Interferometer, if you are reading a maximum signal on the receiver (i.e. constructive interference is occurring), how far must you move the mirror in order to observe a minima (destructive interference). **Hint: Note that there is a difference between the total path difference (not what I'm asking for) and the distance that you must move the mirror.

You Answered

☒ $\frac{\lambda}{2}$

Correct Answer

☐ $\frac{\lambda}{4}$

☐ λ

☐ 2λ

Question 4**1 / 1 pts**

Your household wifi has a frequency of 2.4 GHz, which is a microwave frequency. Calculate the wavelength of this electromagnetic wave. Use $c = 3 \times 10^8 \frac{m}{s}$.

Correct!

0.1250

Correct Answers

0.125 (with margin: 0.01)

0.0 (with margin: 0.0)

0.0 (with margin: 0.0)

0.0 (with margin: 0.0)

Quiz Score: **1** out of 10