

Oberlin College Physics 111, Spring 2024

## Assignment 9

Monday, 8 April

*Reading:* None for this week.

*Laboratory:* “Measuring Magnetic Field”.

*Early warning:* Exam coming up on Wednesday, 24 April.

*Eclipse:* No class on Monday, 8 April. Instead, think about this puzzle:

When I stand on the Earth’s surface, I see the Sun rise in the east and set in the west. I see the Moon rise in the east and set in the west. I see Venus, Mars, Jupiter, and Saturn rise in the east and set in the west. Everything goes from east to west. Yet the shadow of an eclipse sweeps across the Earth’s surface generally from west to east. Why is the eclipse shadow different from everything else?

[*Solution:* From one sunrise to the next is about 24 hours. From one moonrise to the next is about 25 hours. From the Earth’s point of view, the Moon has a faster angular rotation speed than the Sun. Since the path of the eclipse is the shadow cast by the Moon, that shadow proceeds generally west to east.]

*Guest Lectures:* Four Oberlin College honors students will be giving presentations in the upcoming weeks (in Wright 201 at 4:35 pm). The usual extra credit rule applies.

Julian Kennedy: Thursday, 11 April, “Simulating the Fermi bubbles in Milky-Way like galaxies”. (Hand in description on Wednesday, 12 April.)

Felix Weber: Wednesday, 17 April, “The Invisible Hand of Interstellar Plasma: Examining Pulsar Scattering in the search for Low-frequency Gravitational Waves”. (Hand in description on Friday, 19 April.)

*Problems:* Due Wednesday, 17 April.

- 66: *Parallel RC circuit*
- 65: *Width of a resonance curve*
- 69: *Experimental detection of the Maxwell term*