

Lab Notes – Exp.3 Polarization

MH 10/16/2017

There are a few pieces of equipment and procedures in our lab that differ from the official PASCO instructions as detailed below.

General:

To measure the light intensity, we use the PASCO high-sensitivity light sensors and read them out electronically using the LoggerPro hardware and software that you are familiar with from the intro labs instead of with the PASCO logger.

To power the LoggerPro hardware, use the custom-made little black adapter boxes. To get the DC voltages needed to power the black adapter box, use the EMT breadboxes. Connect the LoggerPro via USB to the lab PC or Mac. Use the LoggerPro software installed on the computers.

1. Law of Malus

- Instead of using the rotary motion sensor to turn the polarizer, turn the polarizer by hand and then record the static output reading from the light sensor by hand.

2. Brewster angle

- The beam splitters are kept in the Michelson interferometer spare parts kits.
- We do not have the specific mounts for attaching the beam splitter to the component holder. Instead, put a scissor stand on top of the optical bench and simply place the beam splitter on that.
- If a second high-sensitivity light sensor is not available to monitor the beam intensity with the reflected beam coming off the beam splitter, then just monitor the stability of the laser source for some time with the beam transmitted through the splitter and fold any time variation of the light beam intensity into your uncertainty for the measurement.