

Physics 108 Homework Assignment#4 (due on 4/26/2021)

Reading materials:

Pedrotti 3rd Edition: **Chapter 7:** 7-1 through 7-7

Chapter 8: 8-1 and 8-2.

Lecture Notes: pp. 37-48

Homework: (Pedrotti 3rd Edition)

1. ***Phase differences in soap bubble and Michelson interferometer:*** A light beam with wavelength λ_0 is incident from a semi-infinite medium with refractive index n' at angle θ' onto a slab with refractive index n and thickness d . The refracting angle inside the slab is θ . The other side of the slab is also a semi-infinite medium with n' . The two surfaces of the slab are parallel. Derive the *total* phase difference between the reflected beam from the front surface and the reflected beam from the rear surface of the slab.
2. 7-4
3. 7-11
4. 7-14
5. 7-19
6. 7-20
7. 8-1
8. 8-2
9. 8-3