Physics 108 Homework Assignment#3 (due on 4/21/14 and 5/12/14)

Reading materials:

Pedrotti 3rd Edition: **Chapter 18**: 18-1 through 18-10
Lecture Notes: pp. 24-33

Homework: (Pedrotti 3rd Edition)

From Pedrotti 3rd Edition Chapter 5 and Chapter 18

1.   Derive refraction matrix and translation matrix yourself

2.   (**Optional for extra point**) Derive the reflection matrix using similar convention as the refraction matrix.

3.   18-1

4.   18-3

5.   18-9

6.   18-12

7.   18-14

8.   4-11

9.   4-12

10.   4-13

11.   5-4

12.   5-7

13.   (**Due 5/12/14**) *Landscape Lens*: Perform the Introductory Exercise on Landscape Lens using OSLOEDU software. Show YOUR results by (1) displaying the starting "Surface Data" and "Lens Drawing" for paraxial rays and non-paraxial rays; and (2) displaying your optimized "Surface Data" and "Lens Drawing" for paraxial rays and non-paraxial rays. (You may also try the following condition for start: and "draw off").

SRF	RADIUS	THICKNESS	APERTURE RADIUS	GLASS	SPE
OBJ	--	1.6000e+03	582.352375	AIR	*
1	21.807957 V	4.000000	11.666830 S	BK7 C	
2	27.777778	12.647480 V	9.997114 S	AIR	
AST	--	155.058604 S	4.341641 AS	AIR	*
IMS	--	--	67.000000		*

14.   (**Due 5/12/14**) 18-23 Use the lens specifications and OSLOEDU to (a) find the focal length of Proctor photographic lens and (b) find the ABCD matrix for such a lens.