TiO_2 Reflective Cladding Analysis Update

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Scintillator R & D Meeting
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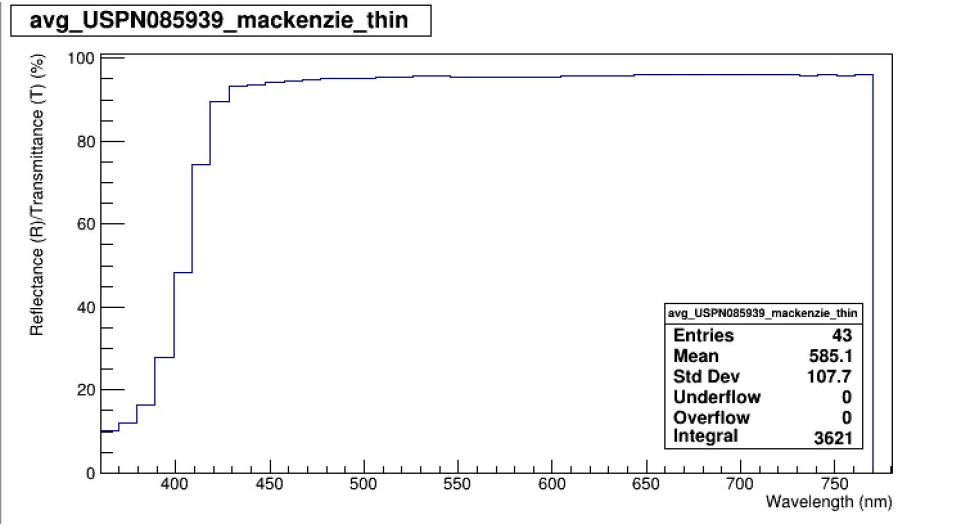
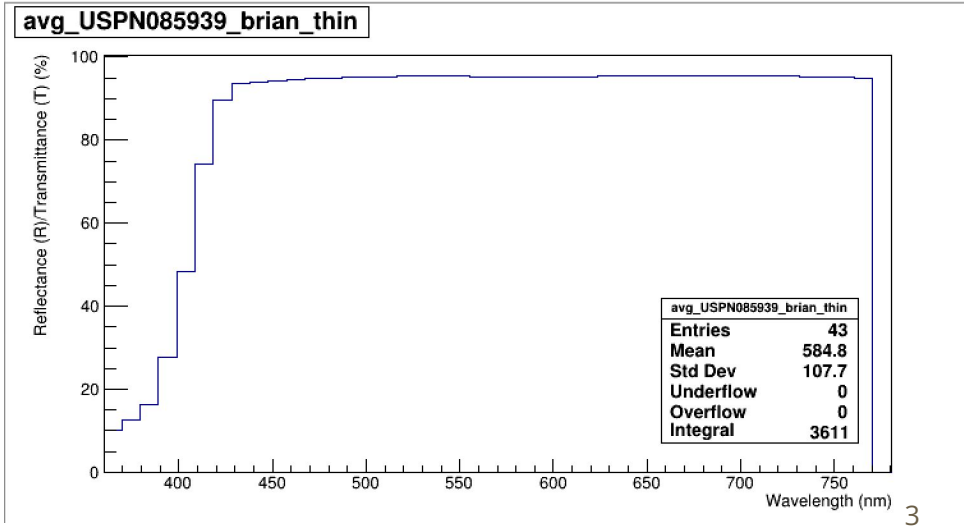
Highlights

- I have a few histogramming functions working inside of the analysis code!
  - Averages
  - Differences
- I have been working to write some of the rest of my data and Brian's older data into my framework
  - Additionally, I made a spreadsheet for organizing what is 'in' and what is not yet
- Weekly measurements of the new TiO2 cladding coupons
  - Missed one week during test beam, but I have a few measurements on these
- Development of script with time on X-axis

Automated Histogram Averaging

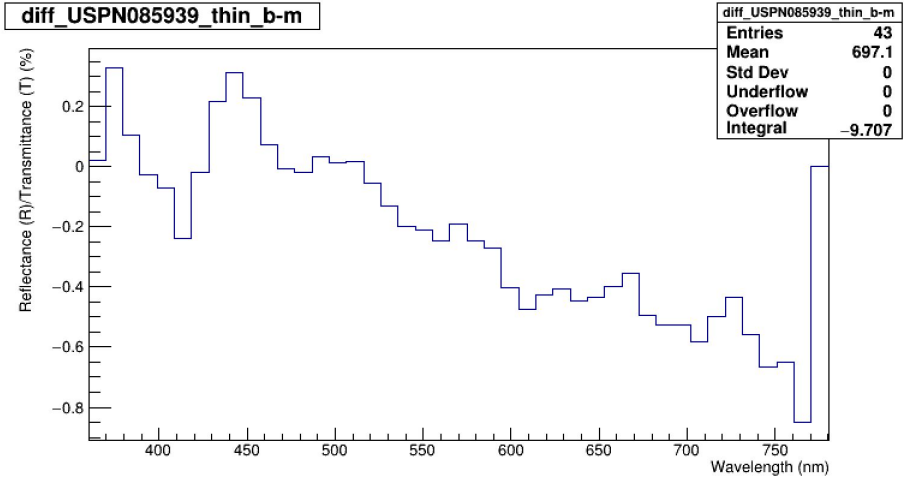
- Given a set of indices into my data histograms, we can produce average histograms on demand. Here are average hists for the same set of coupons, one for my measurements and one for Brian's

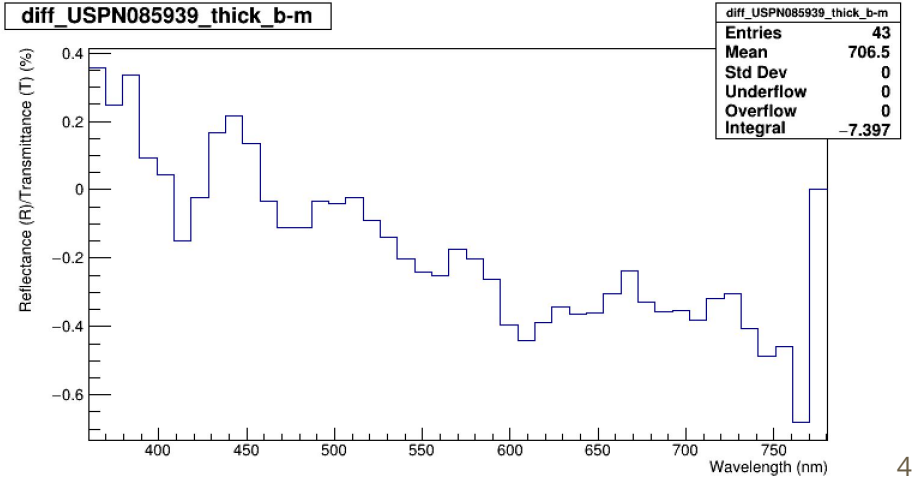




Automated Histogram Differencing

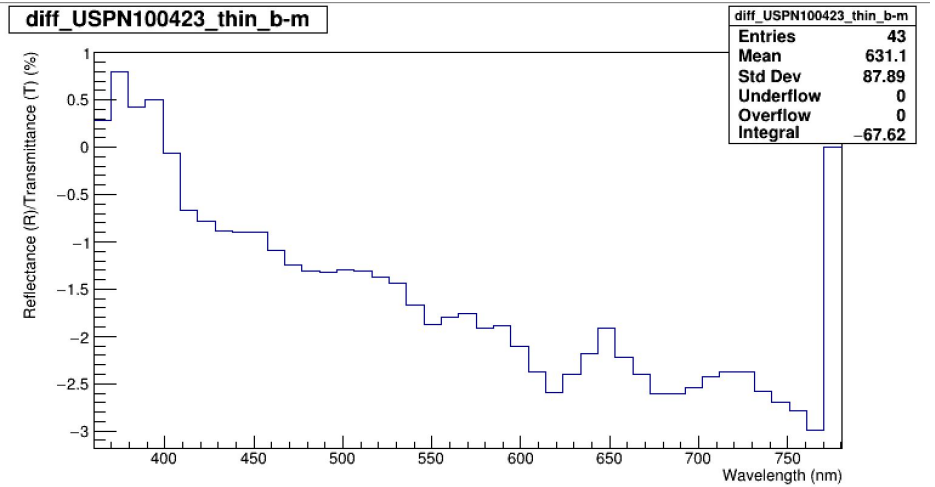
- The automated hist differencing function takes 2 histograms and returns the difference between them
- I have been taking the difference between average hists
- b-m = Brian sample - Mackenzie sample

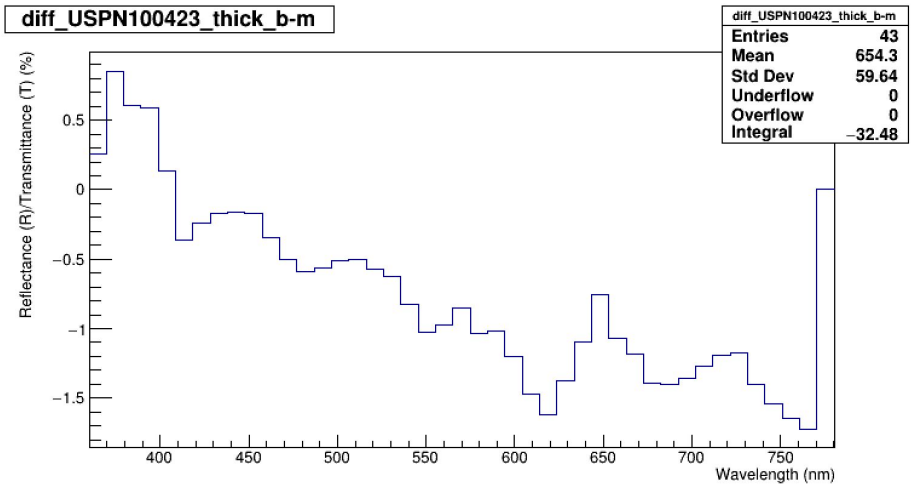




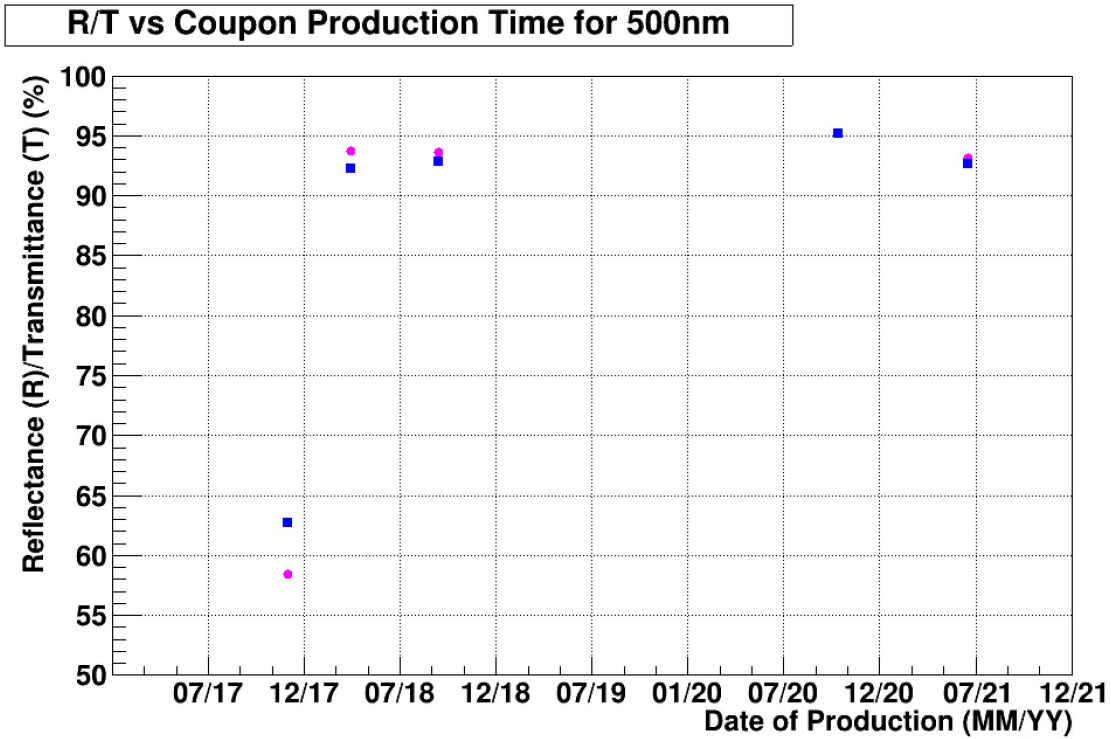
Some Interesting Differences

- I have 5 common sets of data in so far that both Brian and I have analyzed
- Here is one where there looks to be a trend in the difference with wavelength; my samples were higher in R/T at higher wavelengths?





Time on the X-Axis, Plotting R/T for 500nm



- Here is my first attempt at putting time on the x-axis
- For our 5 common samples, plot R/T(500nm) versus the date that the coupon was produced
- (this is the date on the coupon sticker)

Thoughts / Questions

- Thought: time on x-axis
  - Not only do I have the time that each coupon was produced, but I also have the time at which each sample was measured
  - Which would be more interesting to plot against?
  - Will make time on x-axis plot with measurement dates for the new sample, just haven't gotten there yet
- What to do about standard data from each set? Should I compare these?

- Side: I am giving SMP talk on 4/23 in Ann Arbor. Scintillator pieces for show and tell?

A	B	C	D	E	F	
identifier	alias?	data taker	date measured	in macro?	standard in macro?	notes
USPN085939		Mackenzie	02/07/22	yes	no	
USPN085939		Brian	11/04/20	yes	no	
USPN024188		Mackenzie	2/10/22	yes	no	
USPN024188		Brian	4/3/18	yes	no	
USPN024188		Brian	04/12/18	no	no	only thick
USPN035597		Mackenzie	02/07/22	yes	no	
USPN035597		Brian	11/04/20	yes	no	
USPN100423		Mackenzie	02/07/22	yes	no	
USPN100423		Brian	7/27/21	yes	no	
USPN015794		Mackenzie	02/09/22	yes	no	
USPN015794		Brian	1/16/18	yes	no	
USPN014804		Mackenzie	2/10/22	yes	no	
USPN014804		Brian	4/12/18	no	no	only thick
KE08508		Mackenzie	2/10/22	yes	no	
JE05501		Mackenzie	2/10/22	yes	no	
WHC26311A		Mackenzie	2/10/22	yes	no	
KE05173		Mackenzie	02/07/22	yes	no	
KE12291		Mackenzie	02/08/22	no	no	
KE12291		Brian	09/23/16	no	no	
KE23167		Mackenzie	02/08/22	no	no	
KE23167		Brian	11/15/16	no	no	
JE00108		Mackenzie	02/08/22	no	no	