Designing PMT Optical Interface

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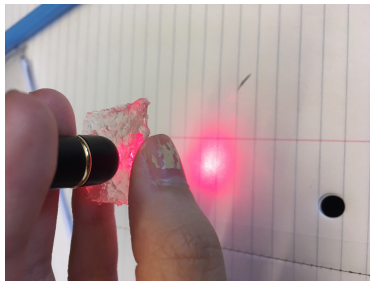
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Update

Broken Photodiode: Update

- Reverse bias applied to photodiode was too high
- Photodiode seemed to behave normally after smaller reverse bias applied
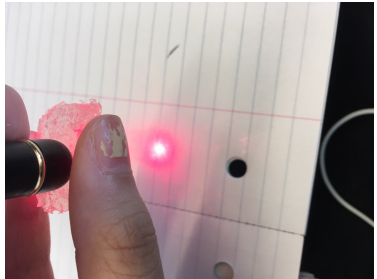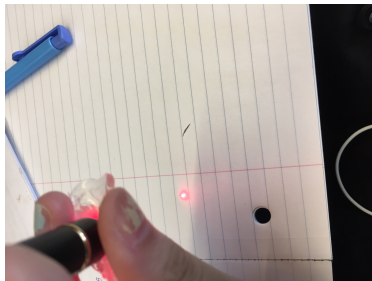
Silicon Gel DIY

Silicon Gel DIY: Attempt 1

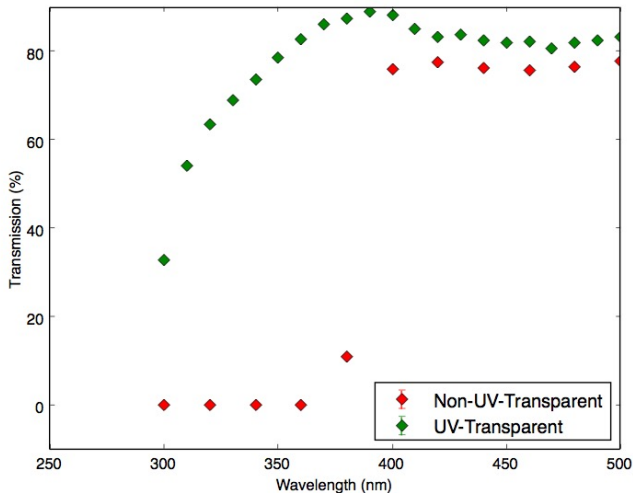# Silicon Gel DIY: Attempt 2

Silicon Gel DIY: Attempt 3

Silicon Gel DIY: Some Conclusions

- Air bubbles need to be minimized
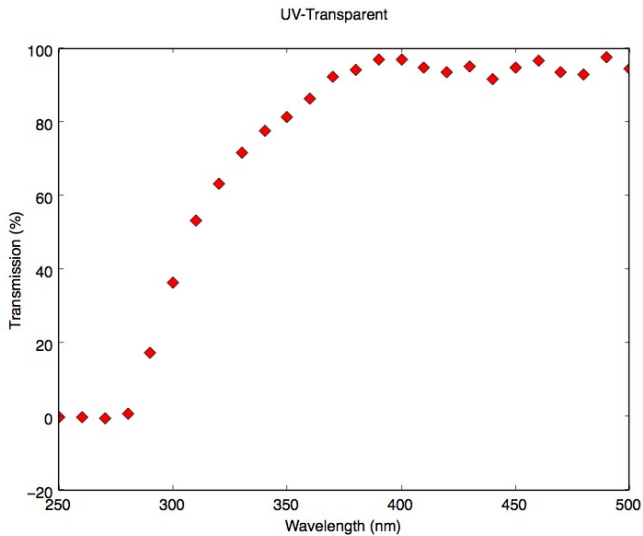- Gel spreads the incoming beam

Further Testing with Acrylic Samples

- Decreased wavelength increments for testing
- Tested for wavelengths below 300 nm
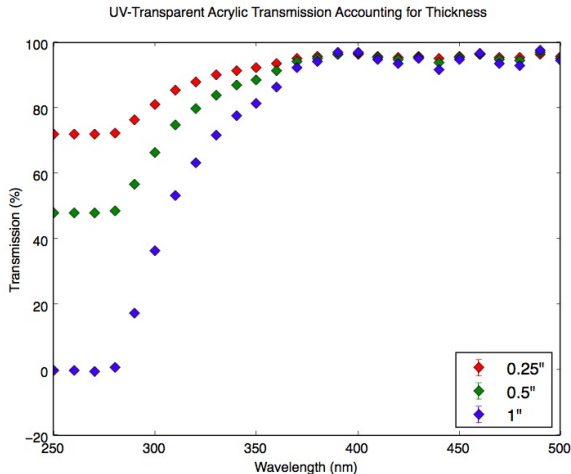
Further Testing with Acrylic Samples: Results

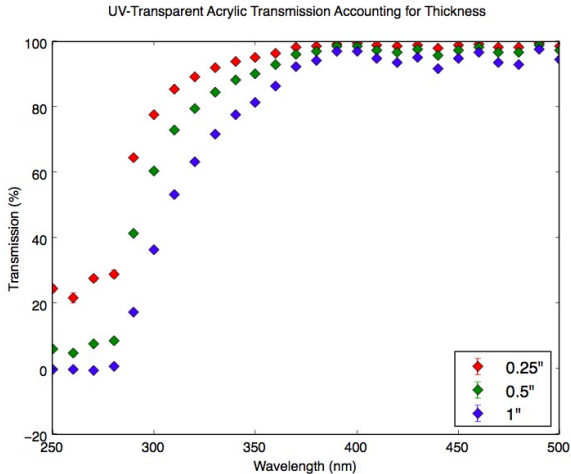# Further Testing with Acrylic Samples: Results

Accounting for Thickness of Acrylic: Model A

$$T' = 1 - R - \alpha + \alpha R + \alpha T$$

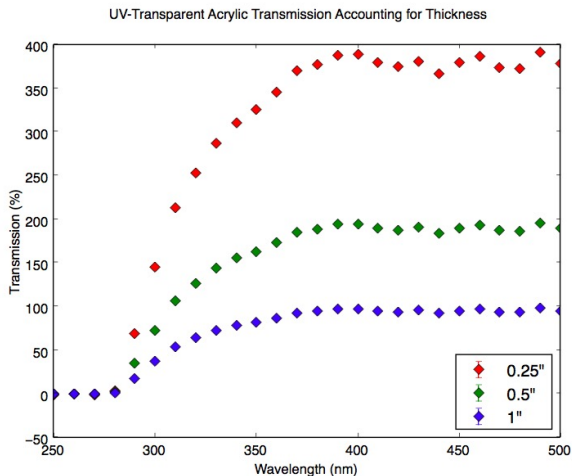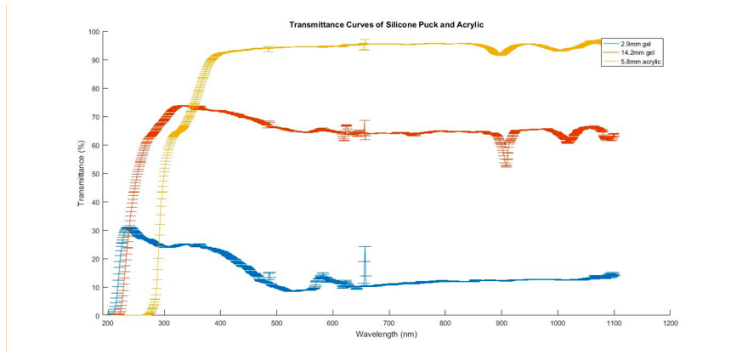UV-Transparent Acrylic Transmission Accounting for Thickness

Accounting for Thickness of Acrylic: Model B

$$T' = T^{\alpha}$$

Accounting for Thickness of Acrylic: Model C

$$T' = \frac{T}{\alpha}$$

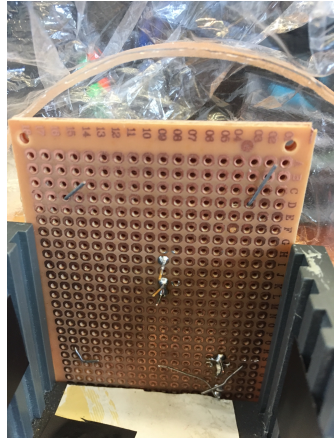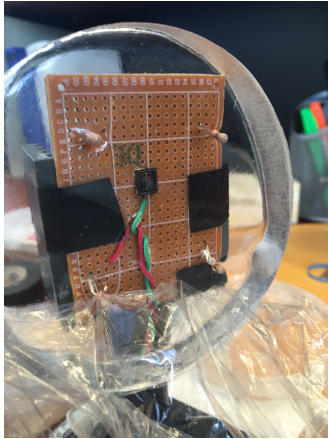UV-Transparent Acrylic Transmission Accounting for Thickness

Accounting for Thickness of Acrylic: Qiqi's Report

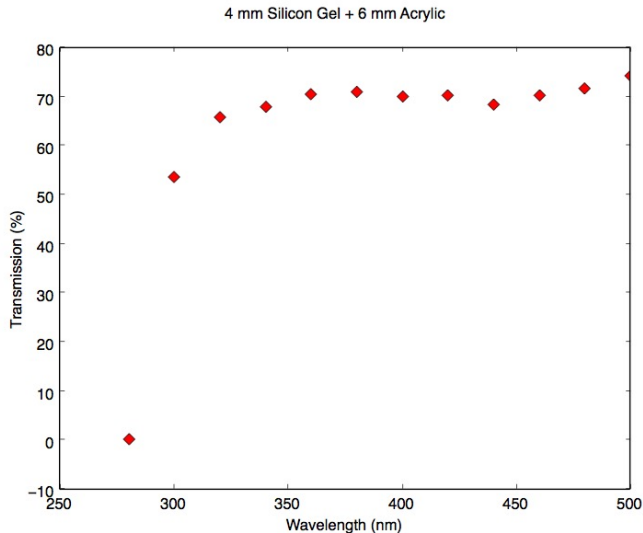Transmittance Curves of Silicone Puck and Acrylic

New Samples: Mounting Acrylic + Silicon Gel Puck
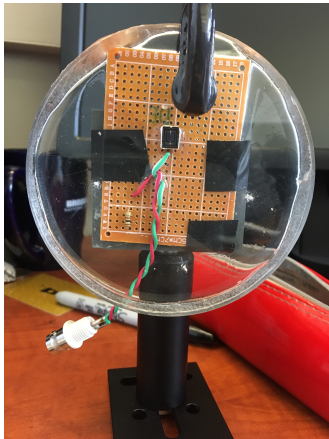
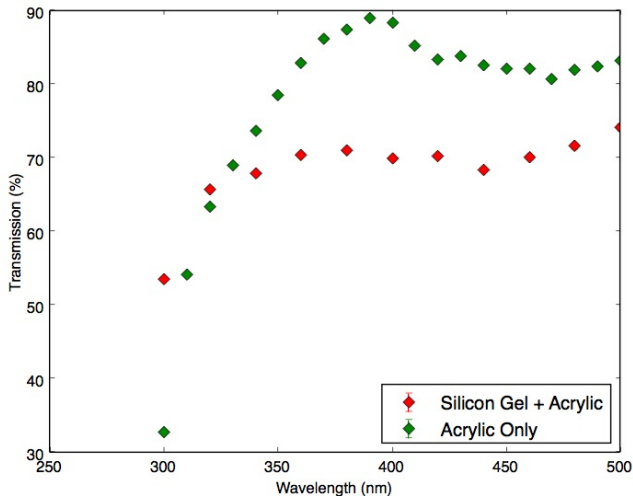# New Samples: Mounting Silicon Gel Puck

New Samples: Results for 4 mm Silicon Gel + 6 mm Acrylic System

4 mm Silicon Gel + 6 mm Acrylic

New Samples: Results for 4 mm Silicon Gel + 6 mm Acrylic System

Next Steps

Some Next Steps...

- Finish testing for all new samples
- Learn gel procedures