

Automated instrumentation for analysis of centrifugal microfluidic discs

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SAND# 5297066



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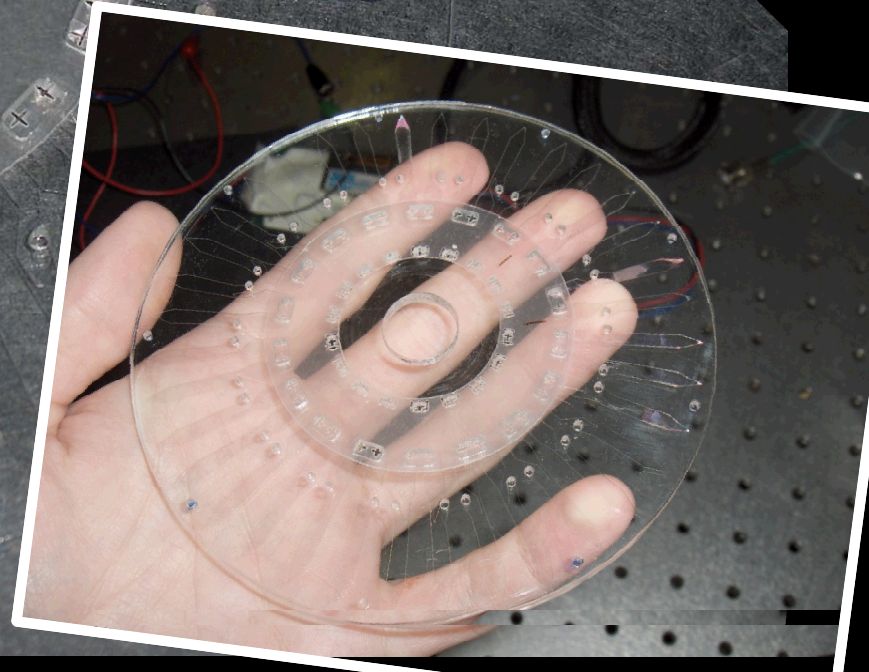
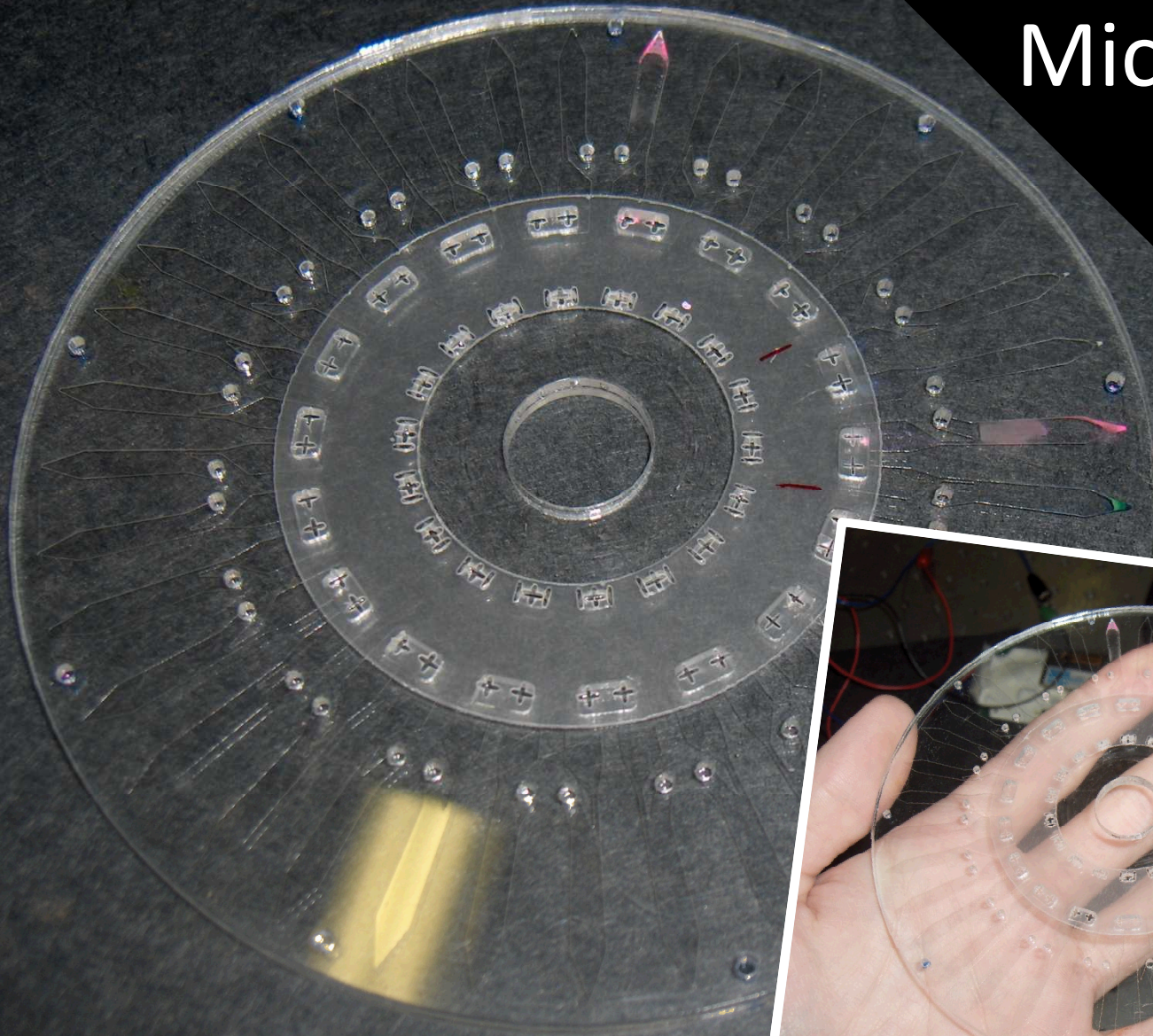


College of SCIENCE

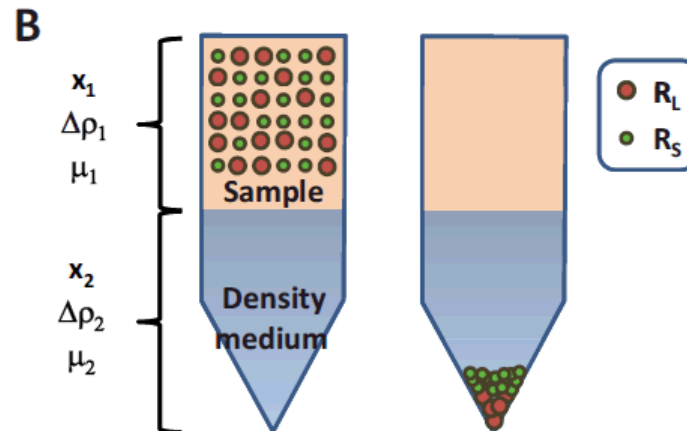
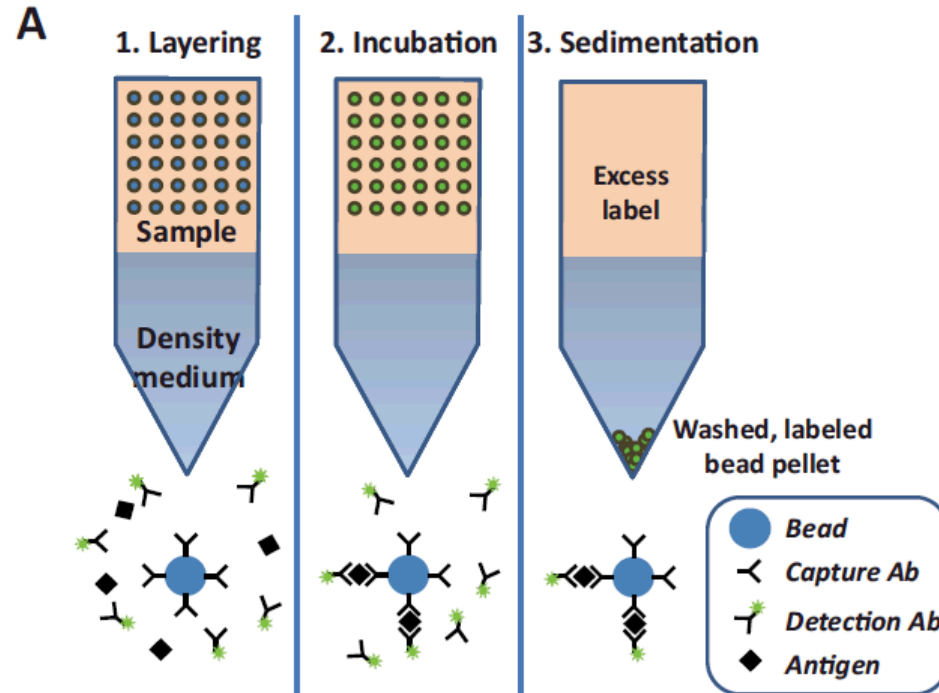


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Centrifugal Microfluidic Disc



Example Assay



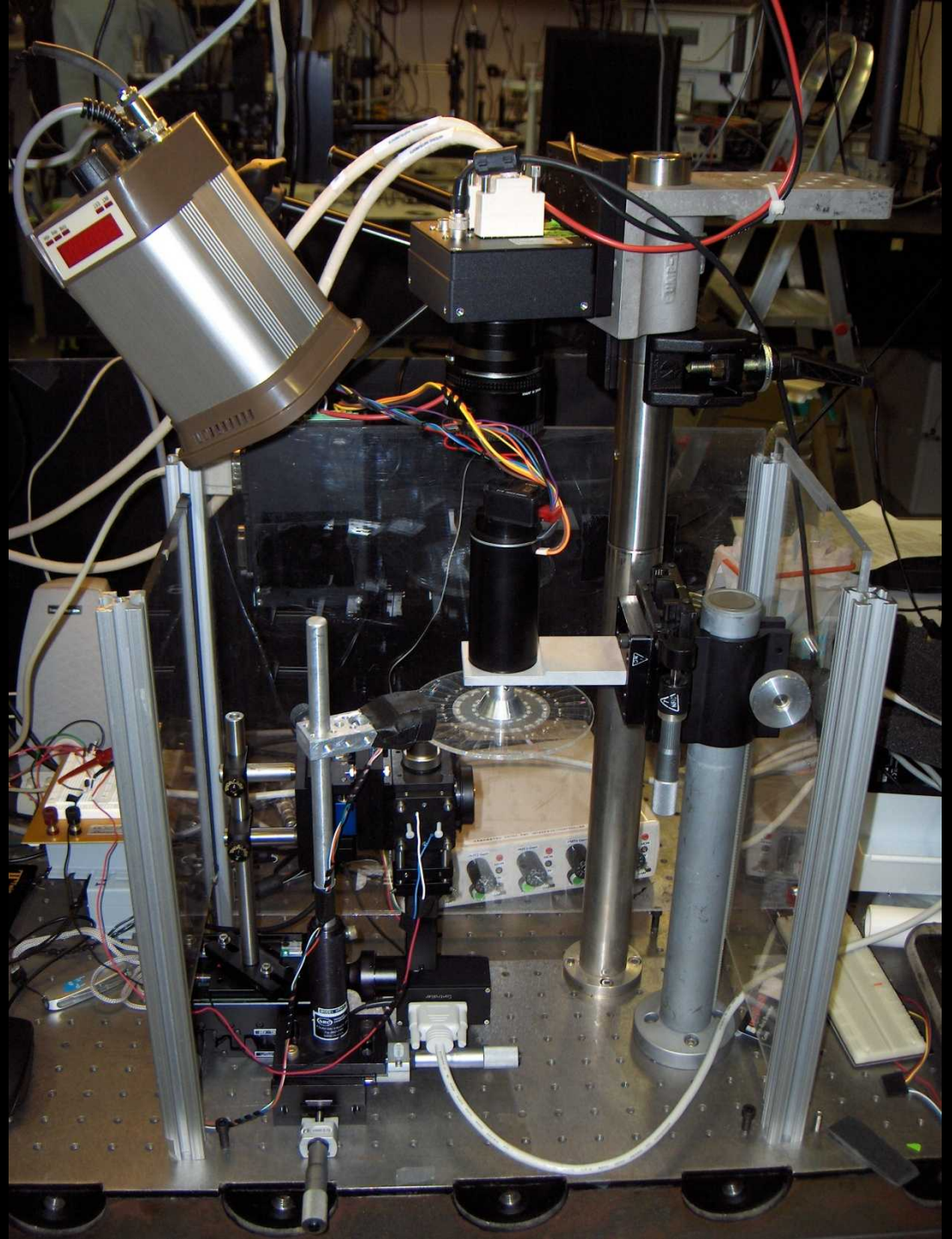
U. Schaff, G. Sommer.
 Whole Blood
 Immunoassay Based
 on Centrifugal Bead
 Sedimentation.
Clinical Chemistry.
 57:5 753–761 (2011)

Qualitative Analysis

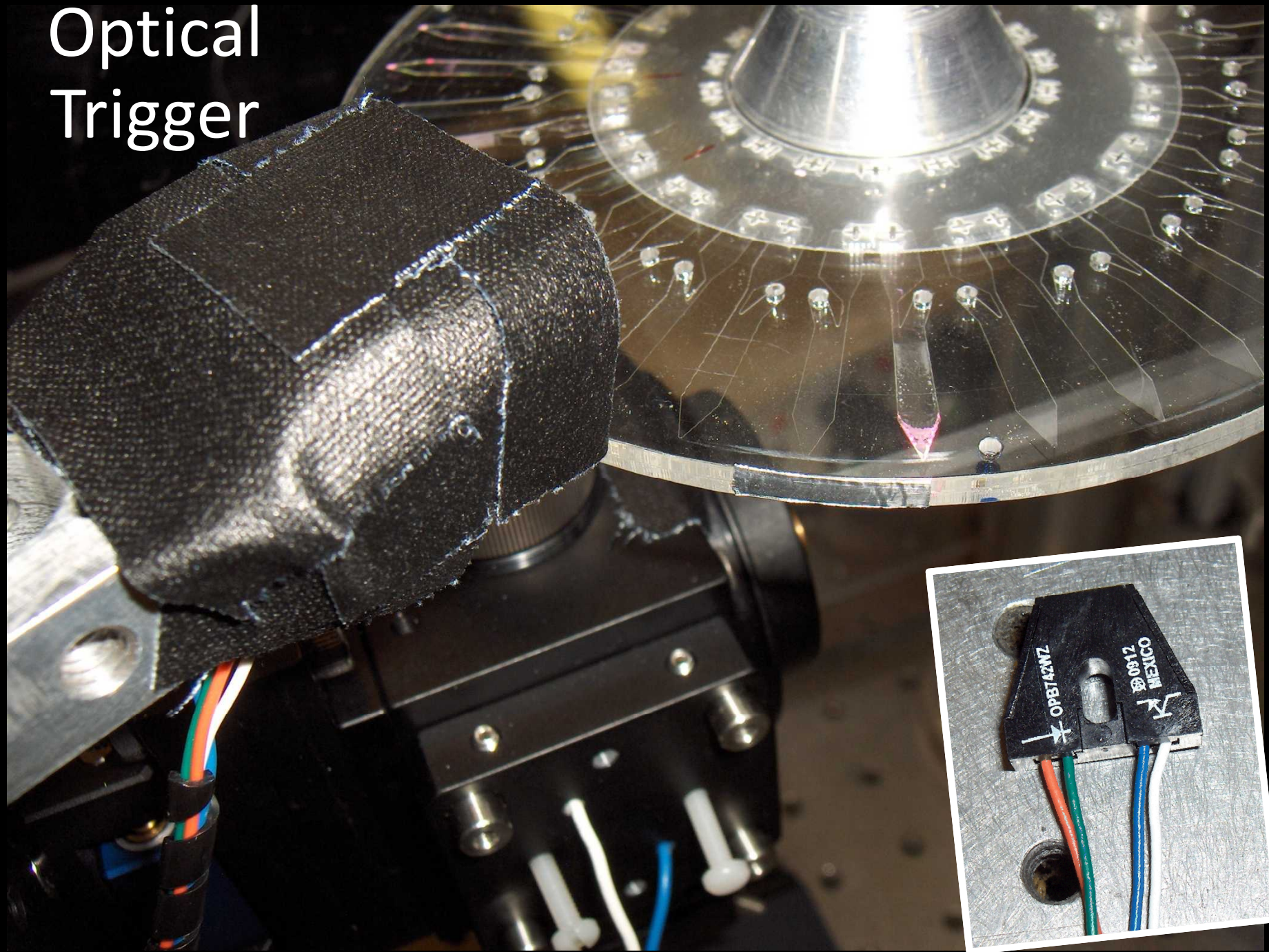
(disc video)

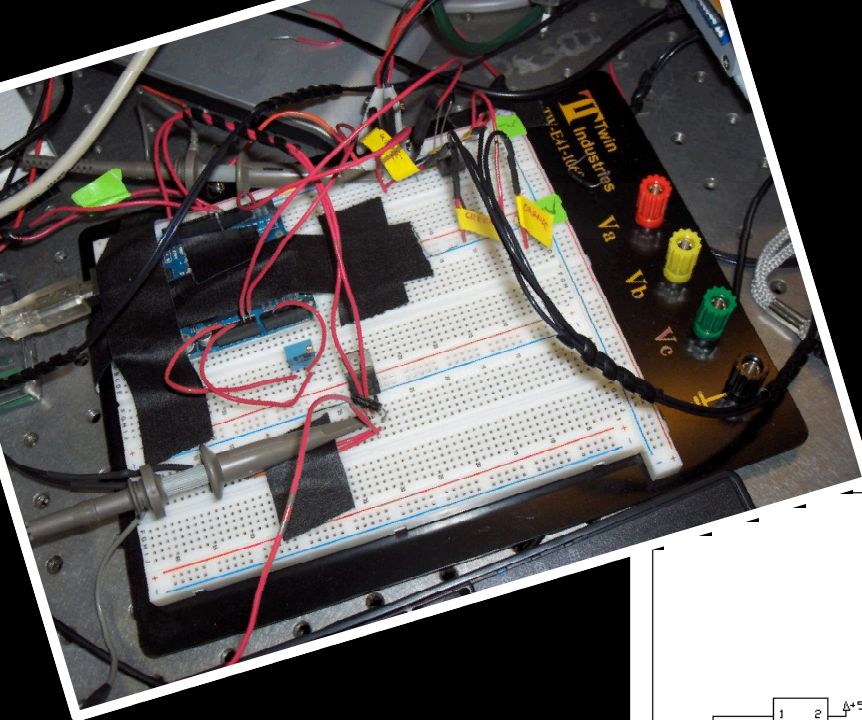
How was this video captured?

Platform Layout

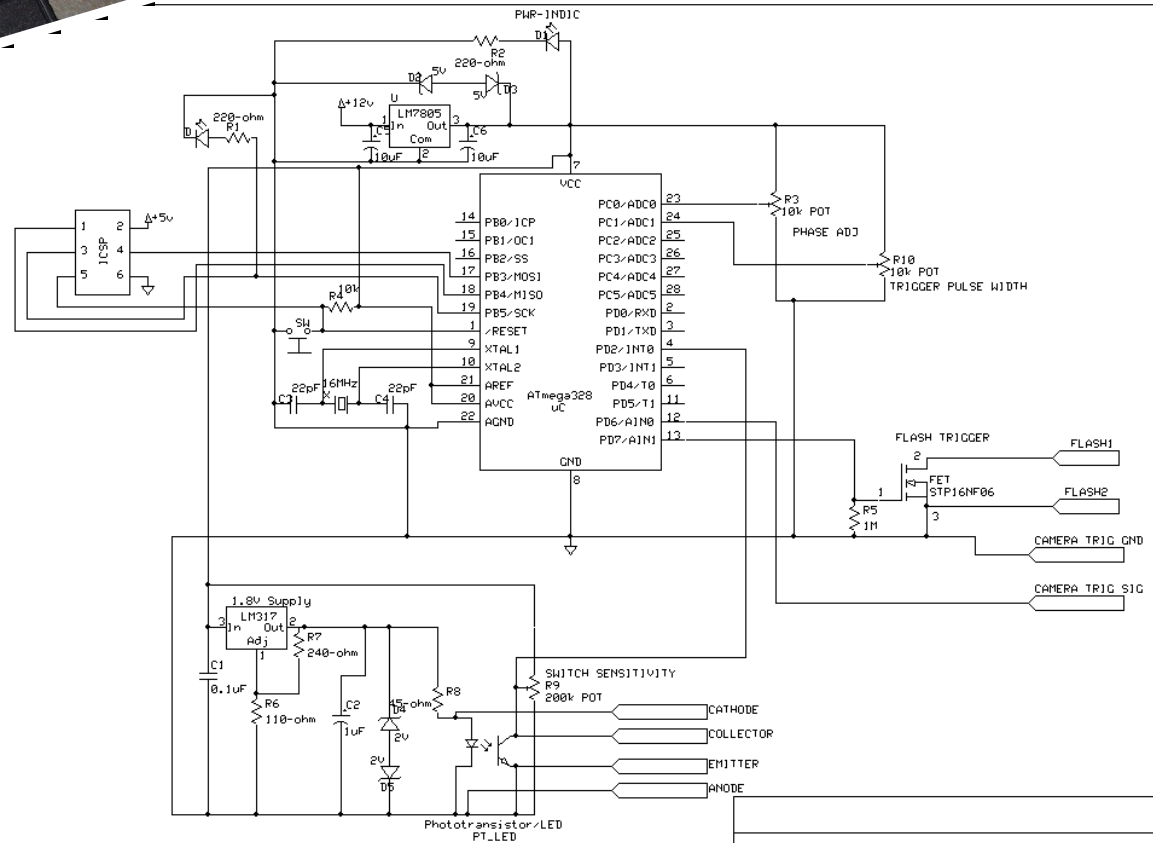
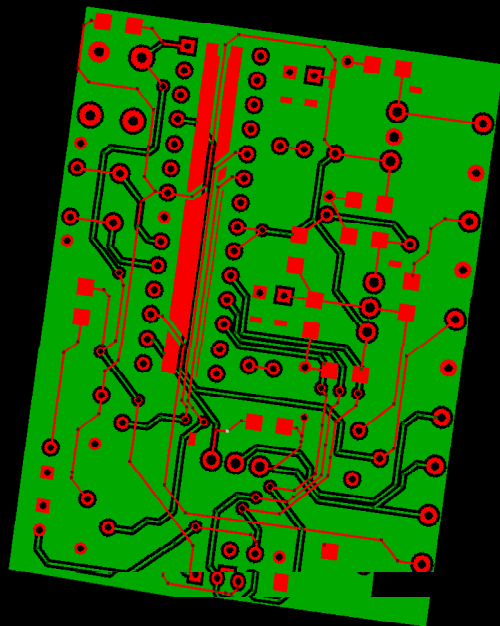


Optical Trigger





Control Board



Imager Trigger

C. Tomkins-Tinch Rev 1.0
7/13/2011

1

Trigger Waveforms

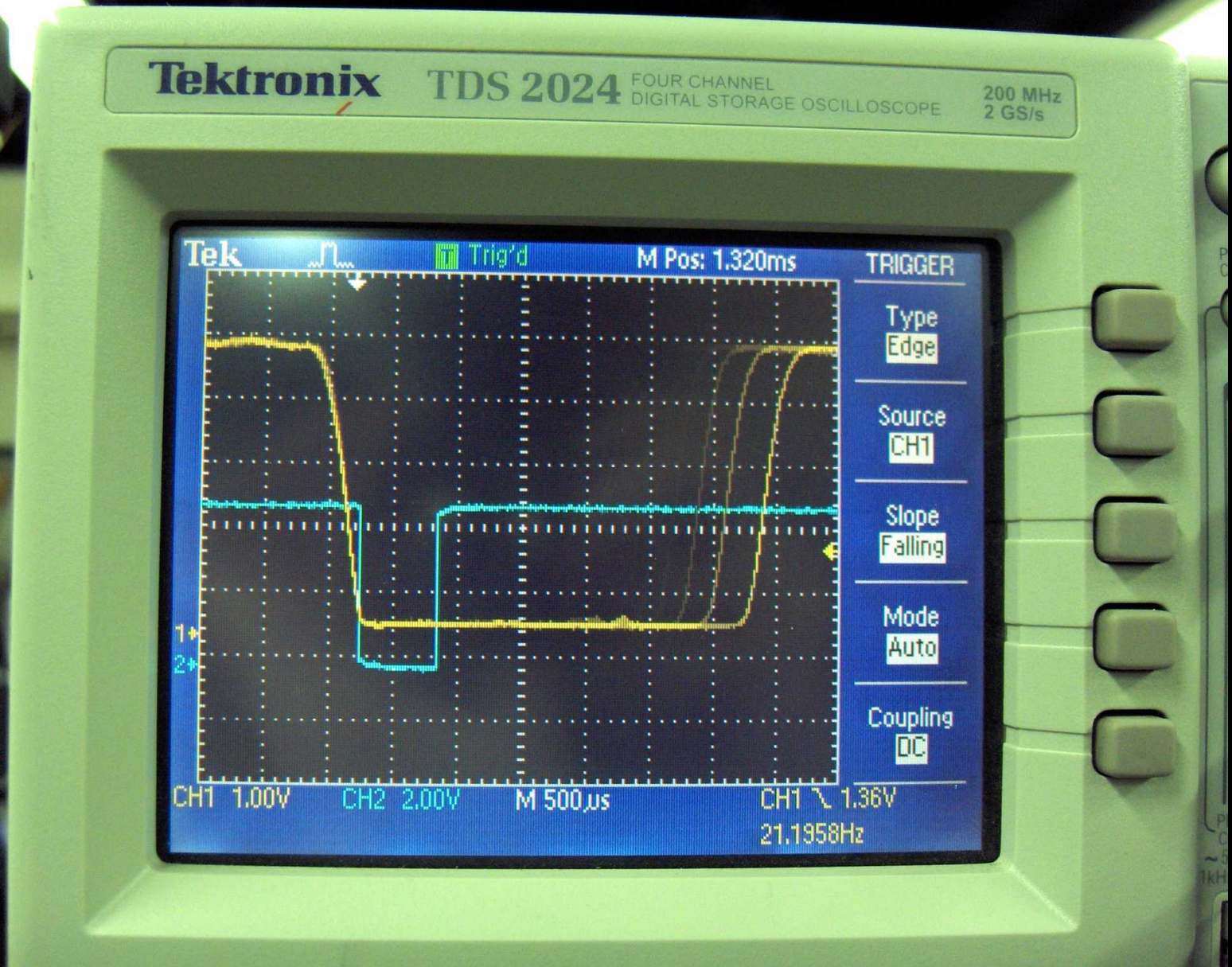
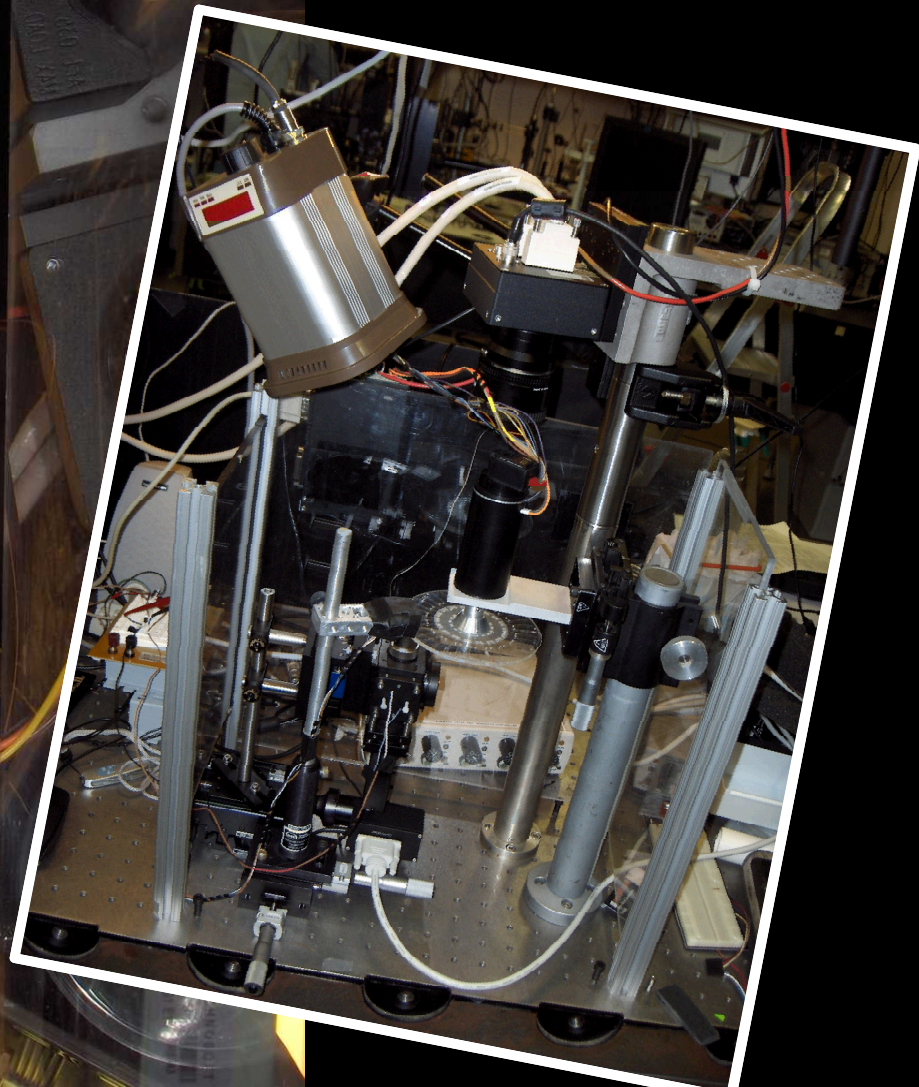
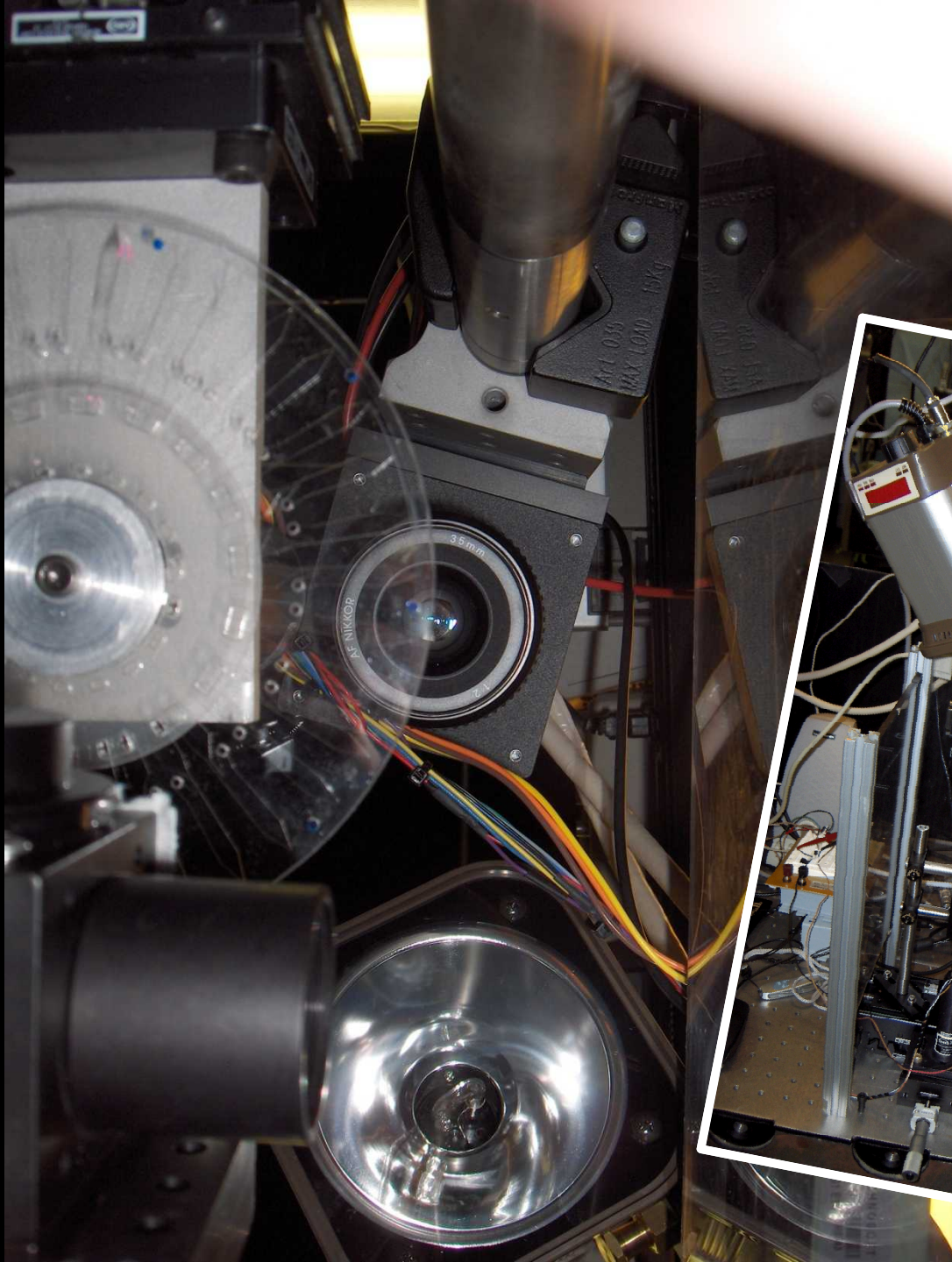


Image Chain



Example Frame

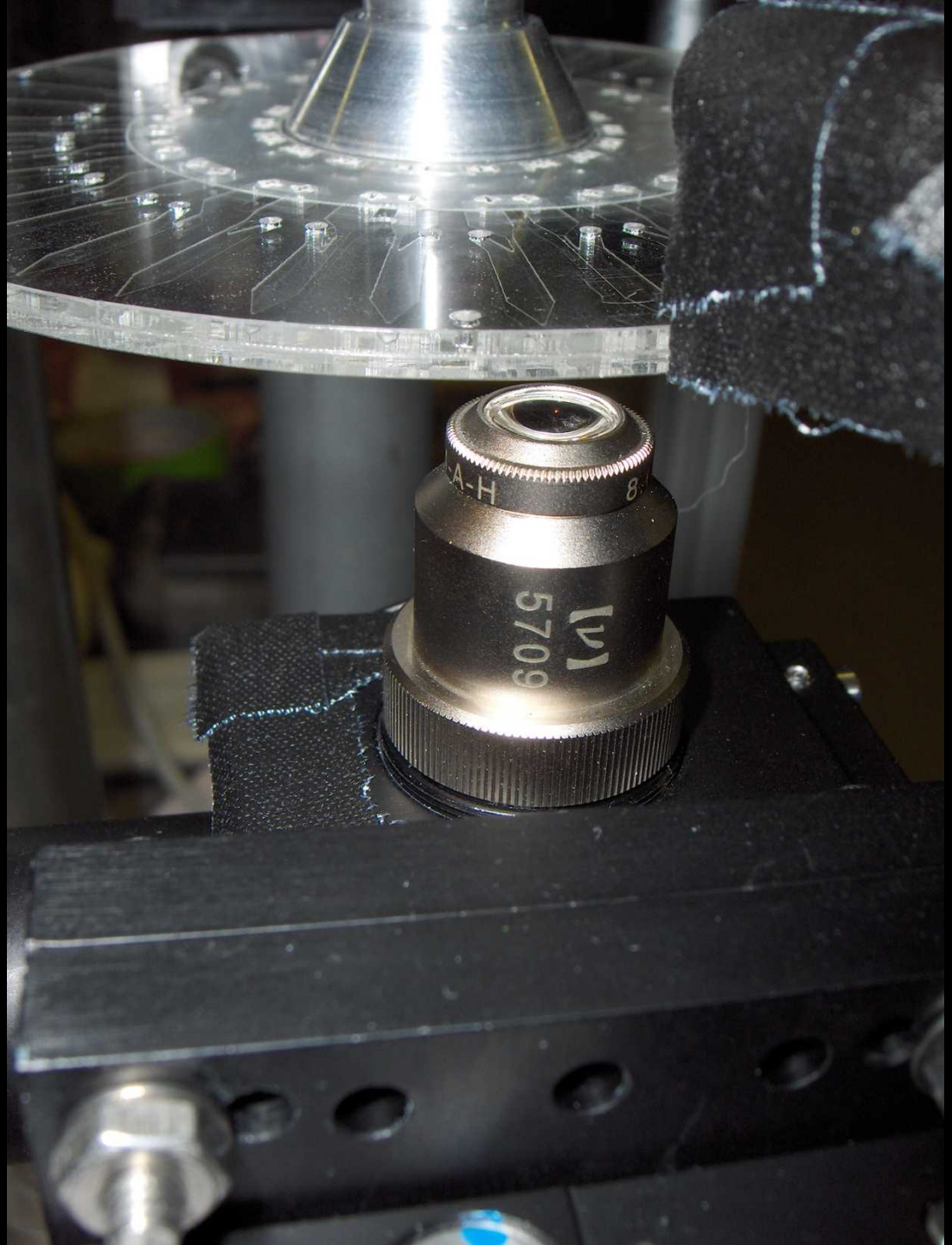


Control Software

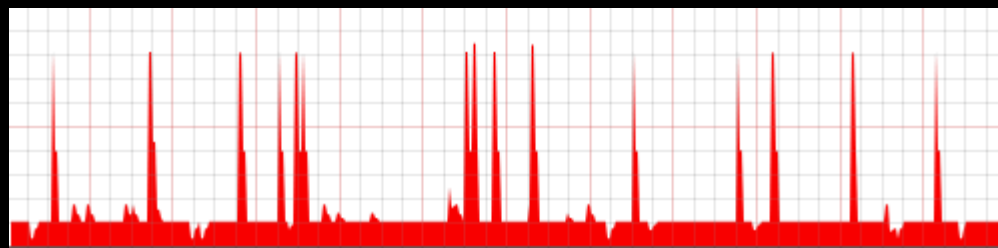
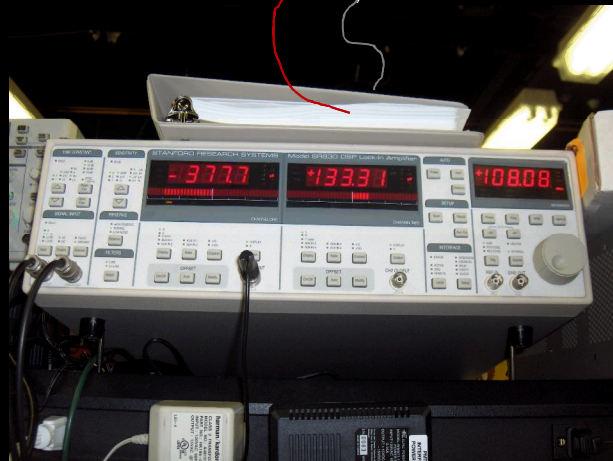
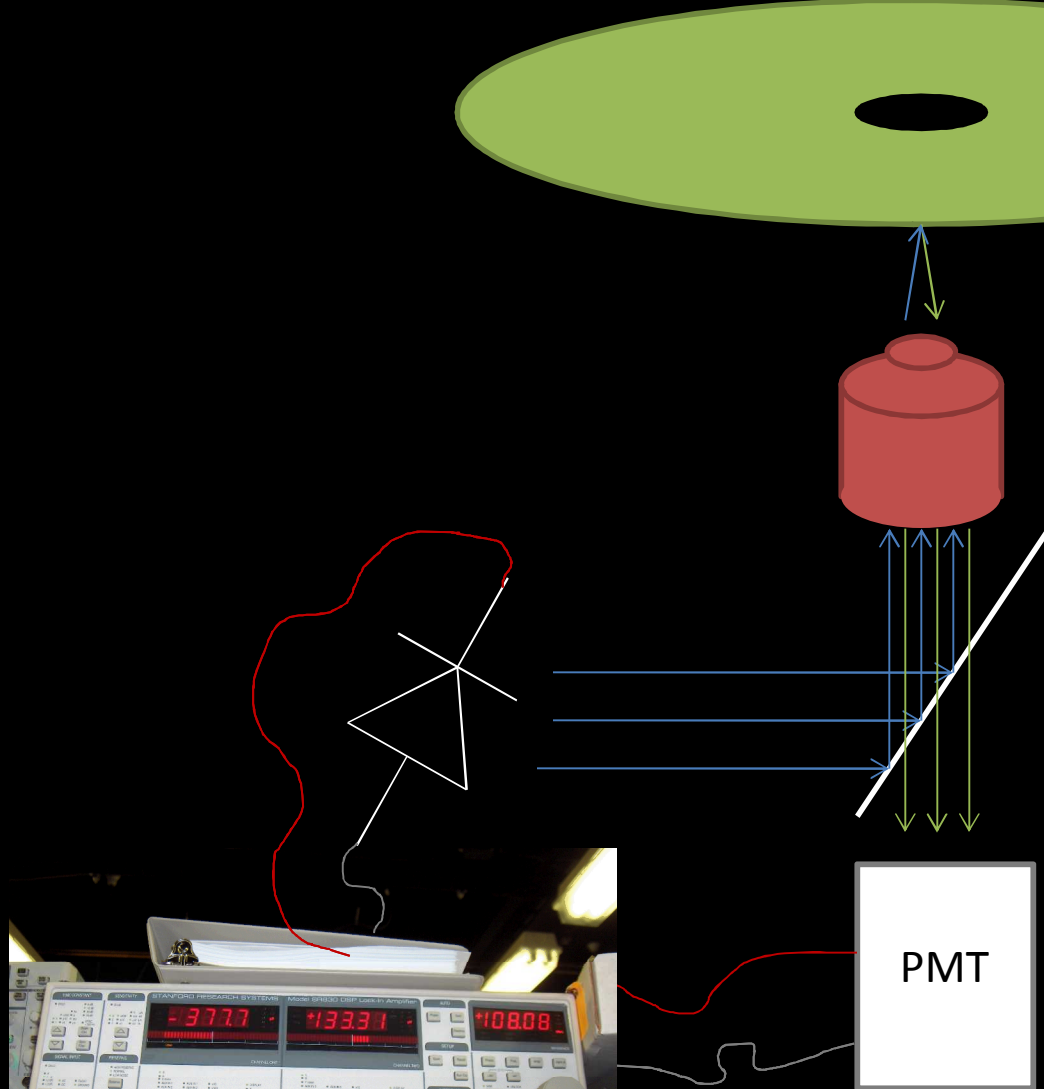


Quantitative Analysis

Optical Measurement

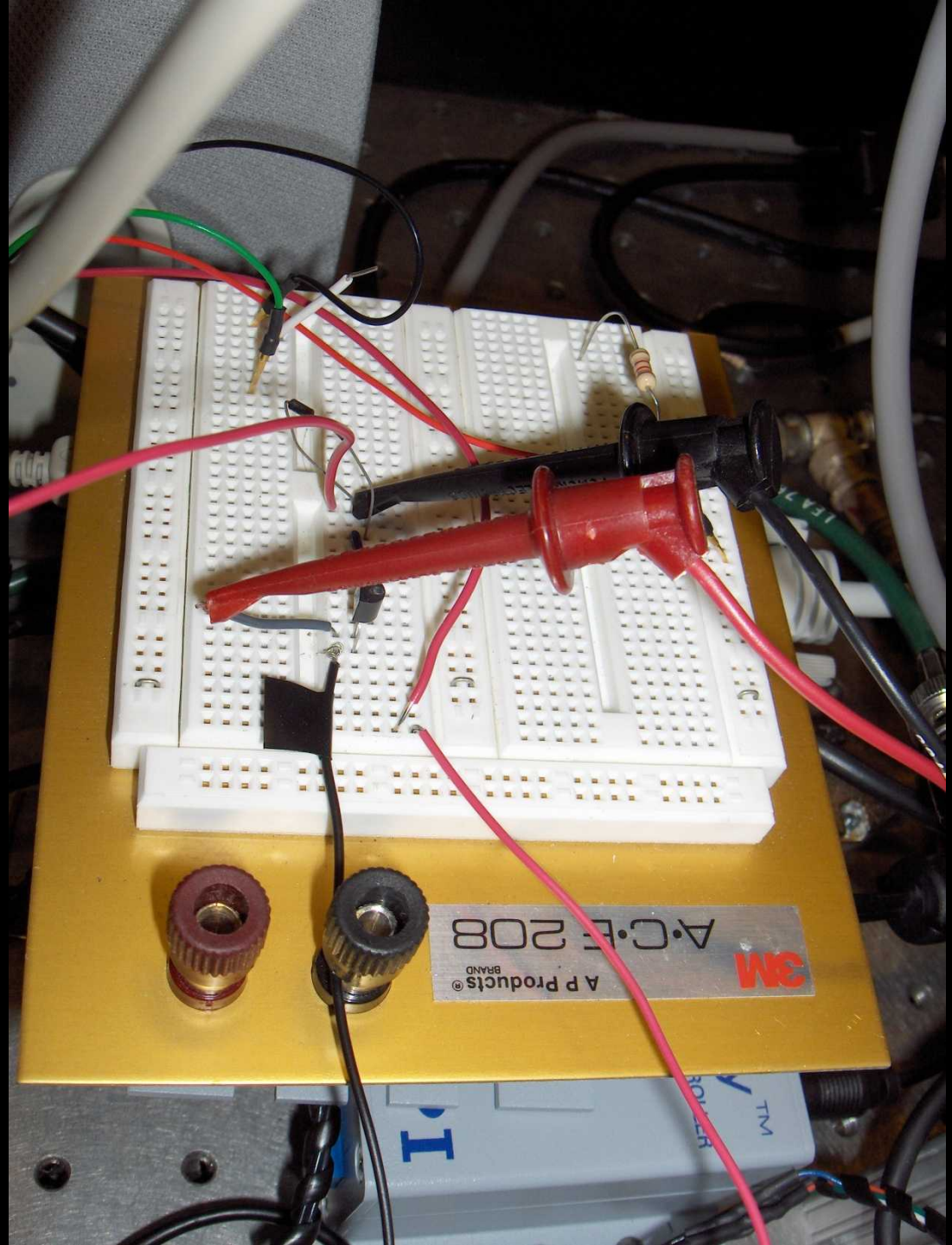


Measurement Method

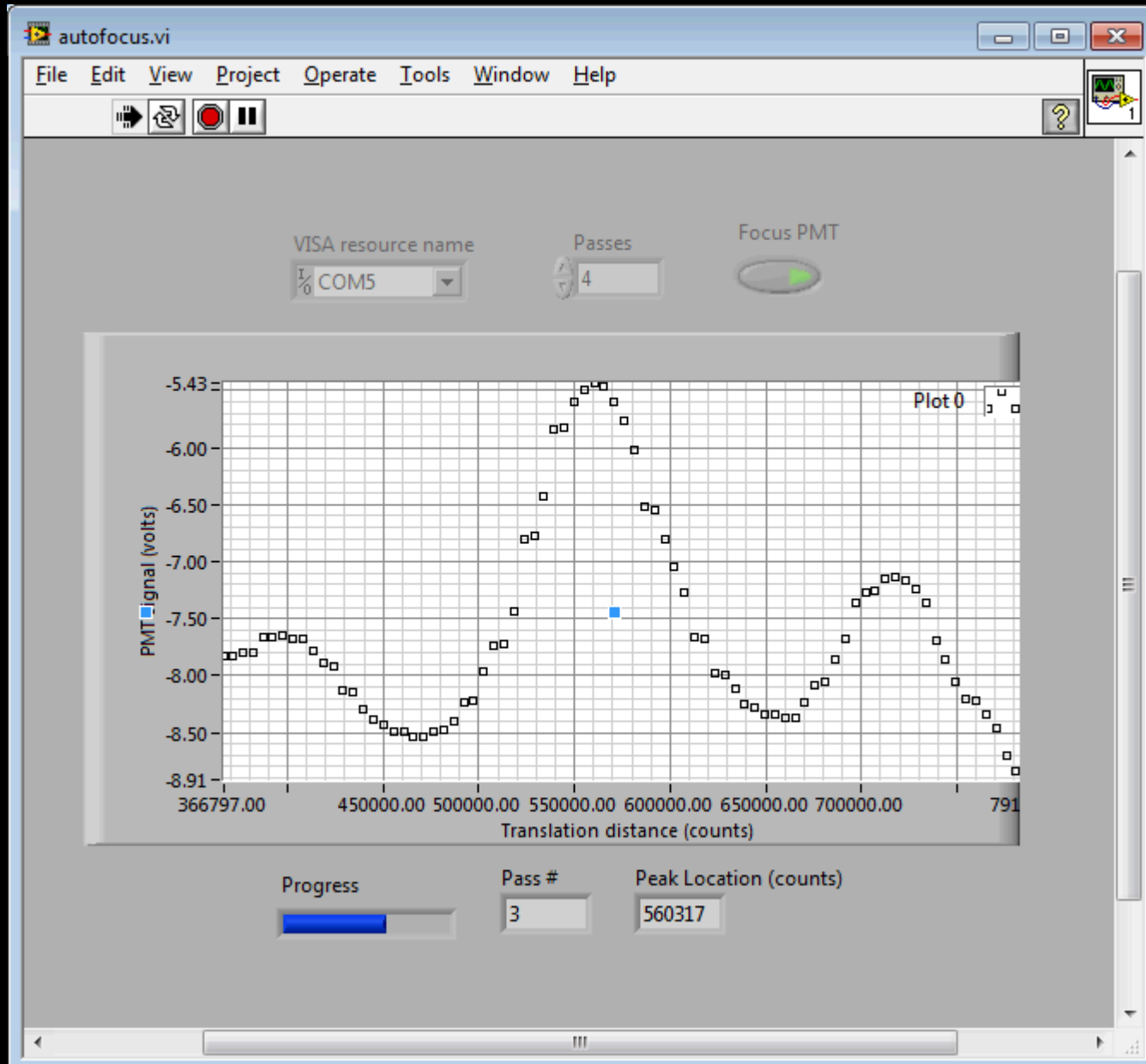


lock-in amplifier

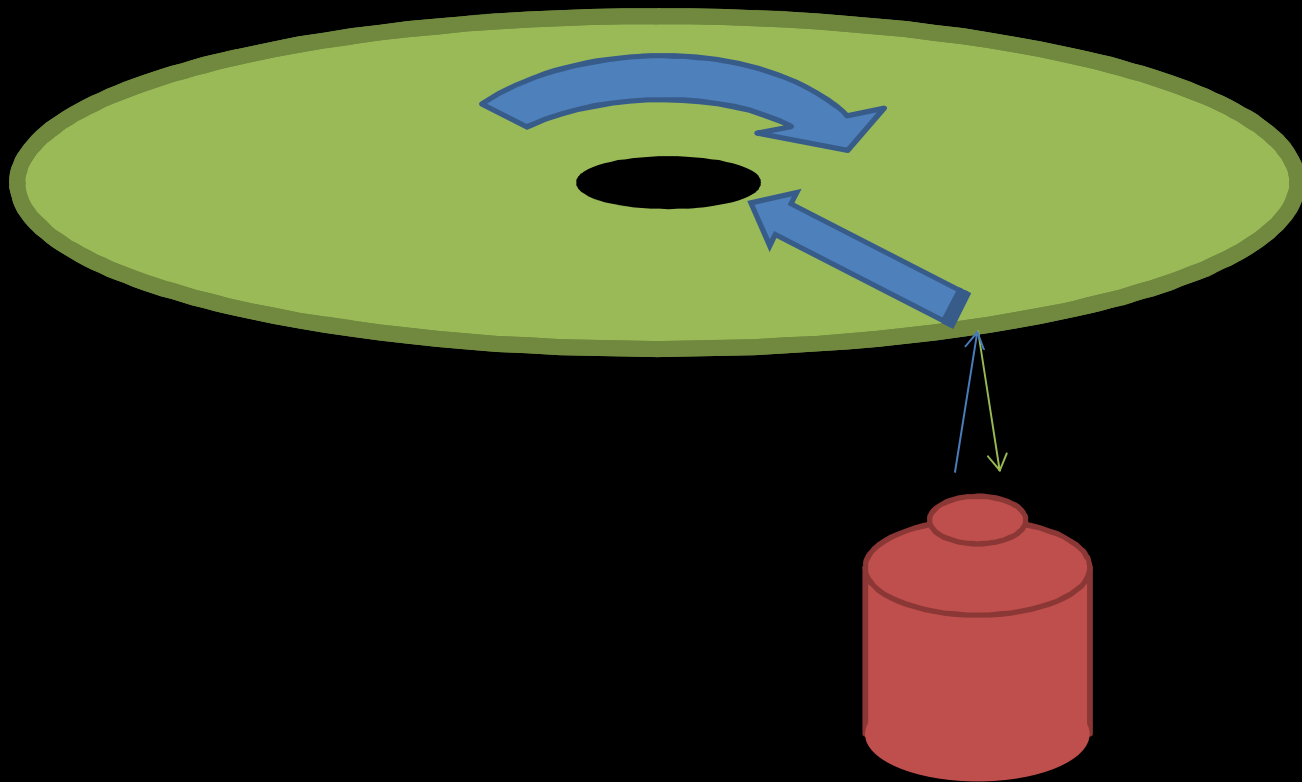
Noise Reduction (cont.)



Focusing the Objective



Building an intensity map



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Questions?

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