

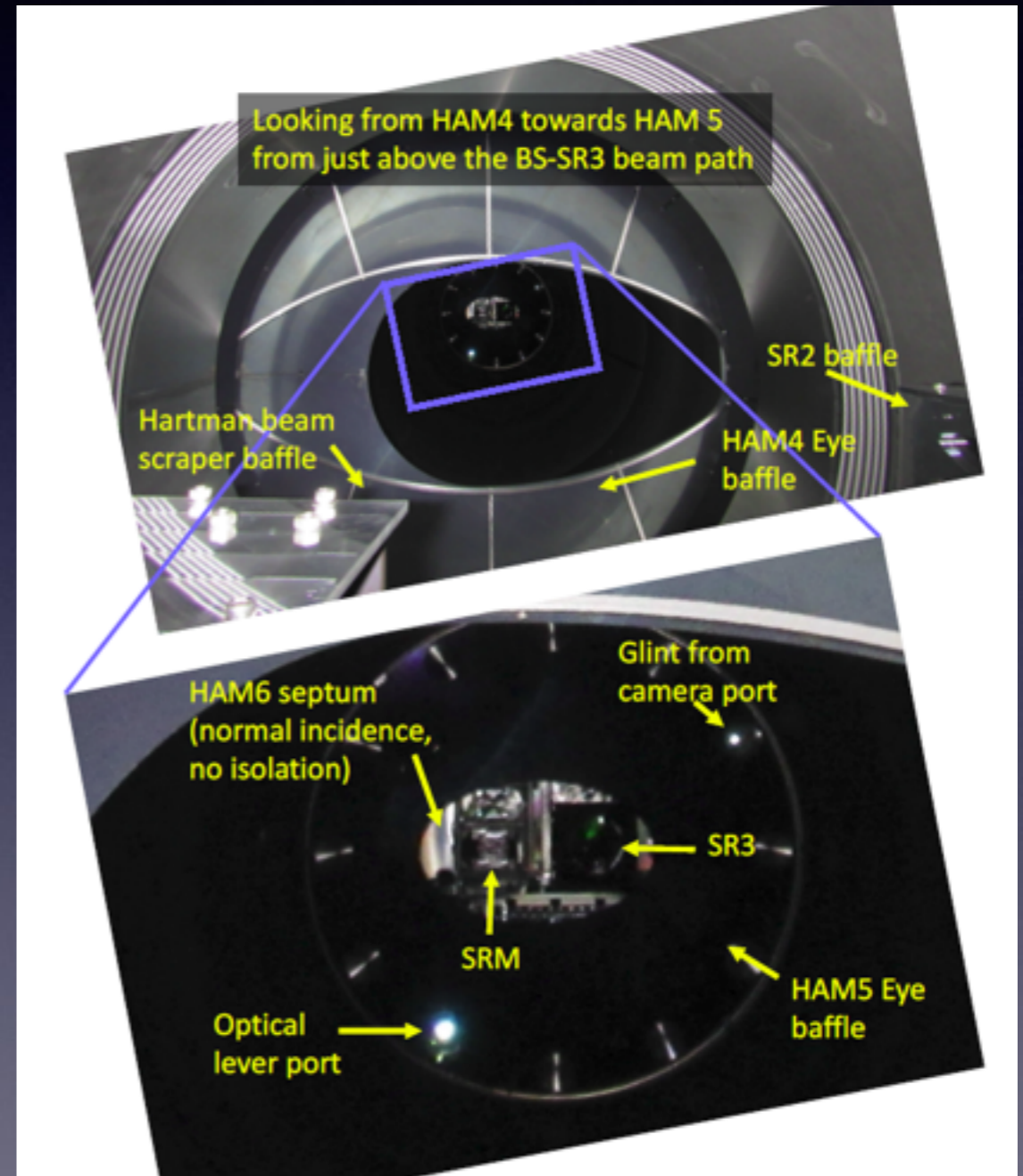


Methodology for in-chamber visible spectrum light-scatter detection

Presentation by Madeleine Kerr
in collaboration with Alena Ananyeva, Alastair Heptonstall,
Calum Torrie, and Norna Robertson

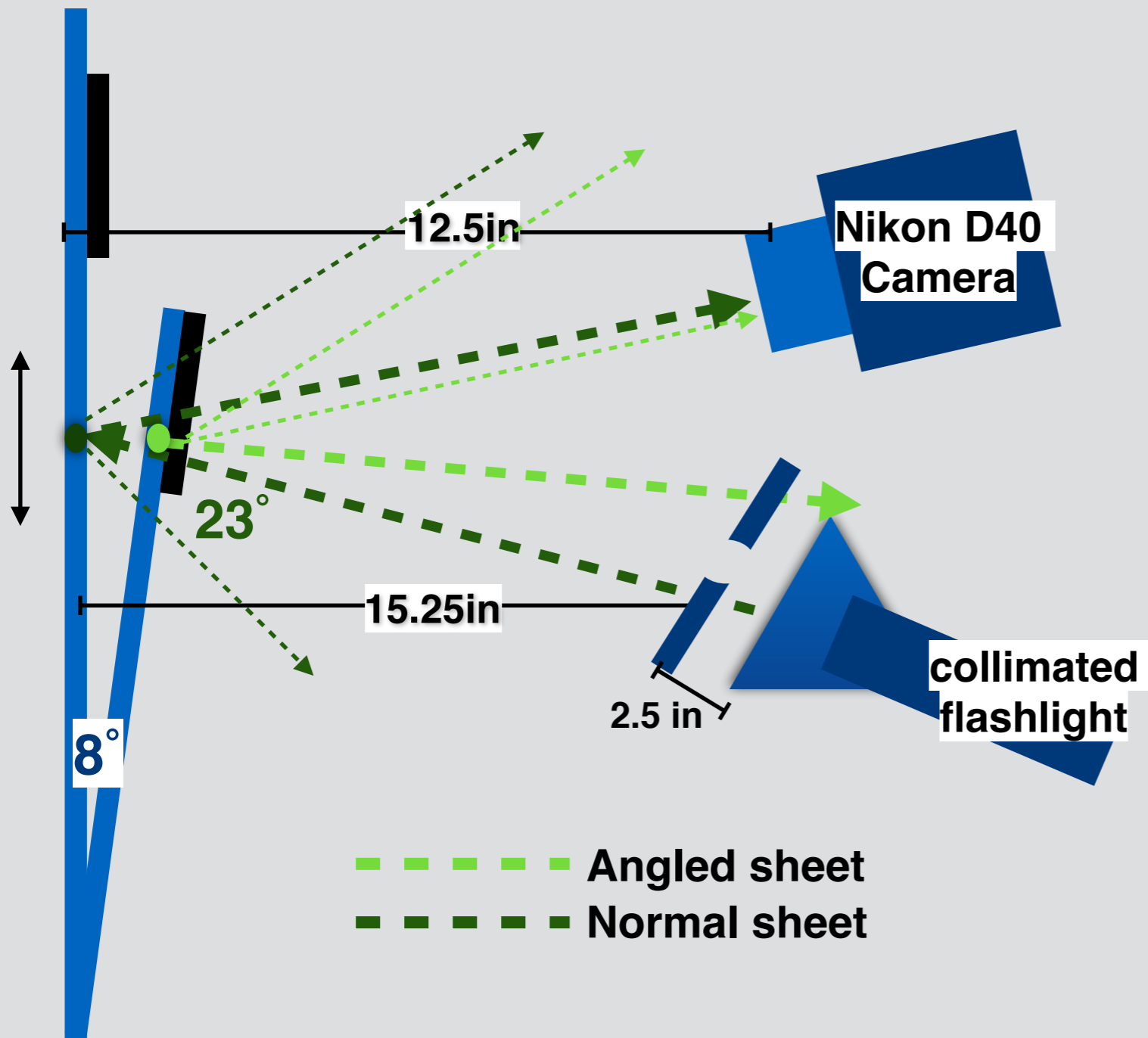
Overview

- Objective: Identify localities in the LIGO detector chambers that cause scattering
- Before: Camera aimed almost along beam path with camera flash as light source



From DCC G1701019

Set up



Al Mill finish

Fractal Black

Magic Black

Super #8 polished SS

Oxidized polished SS

AR multilayer on polished SS

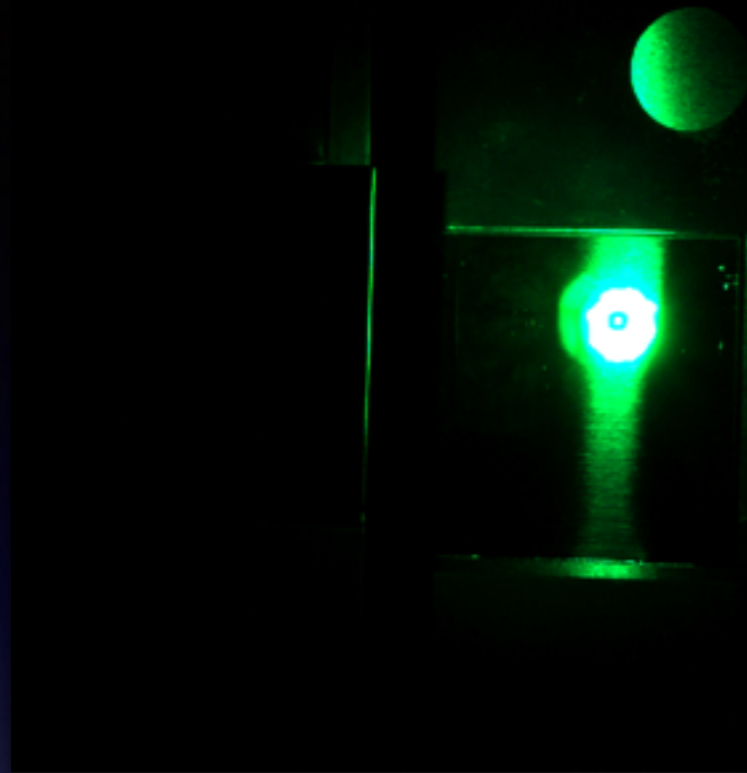
Mill finish SS

AR coated black glass

Al brackets

Diamond-like Carbon Coating on Al

Results

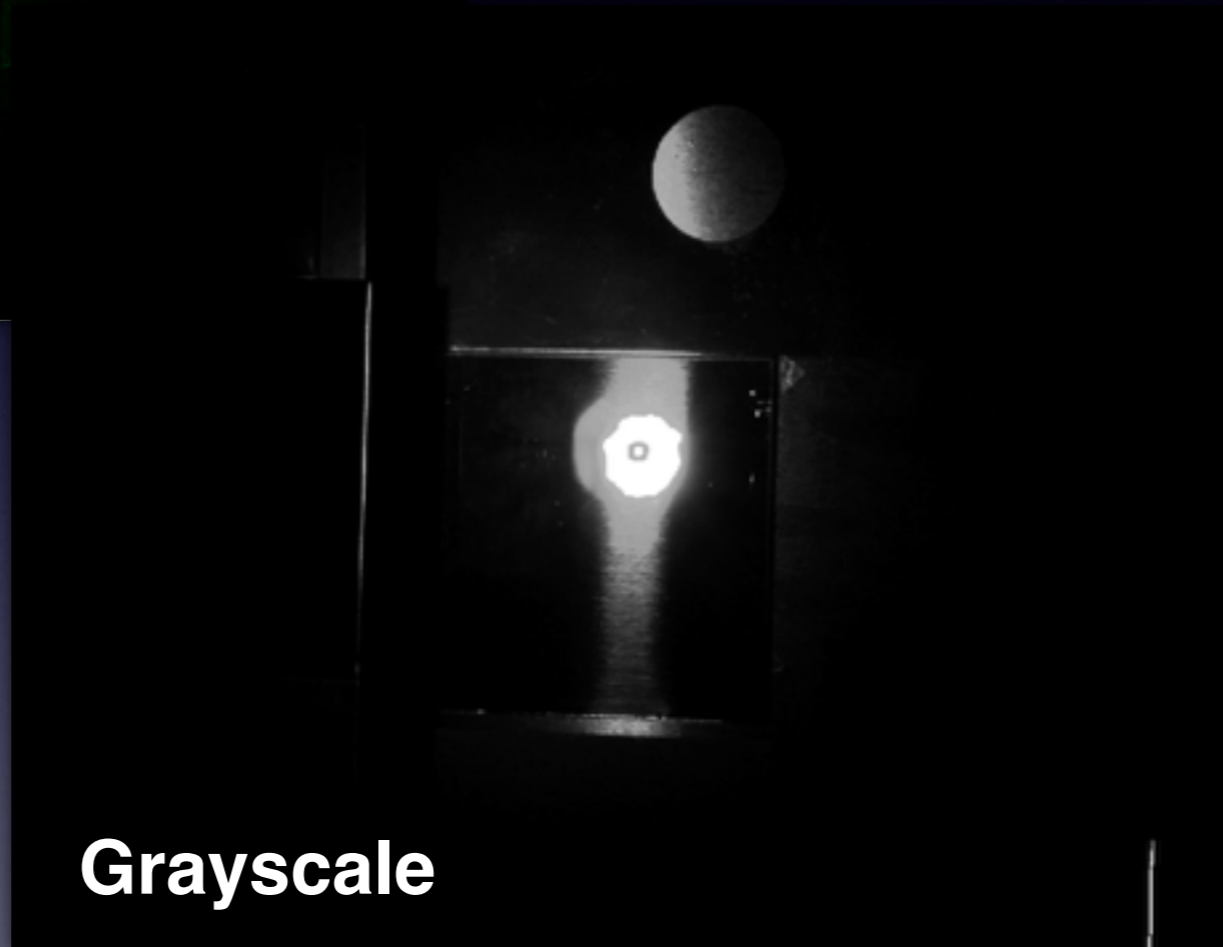


Low Exposure:

ISO 200

Shutter speed 2000

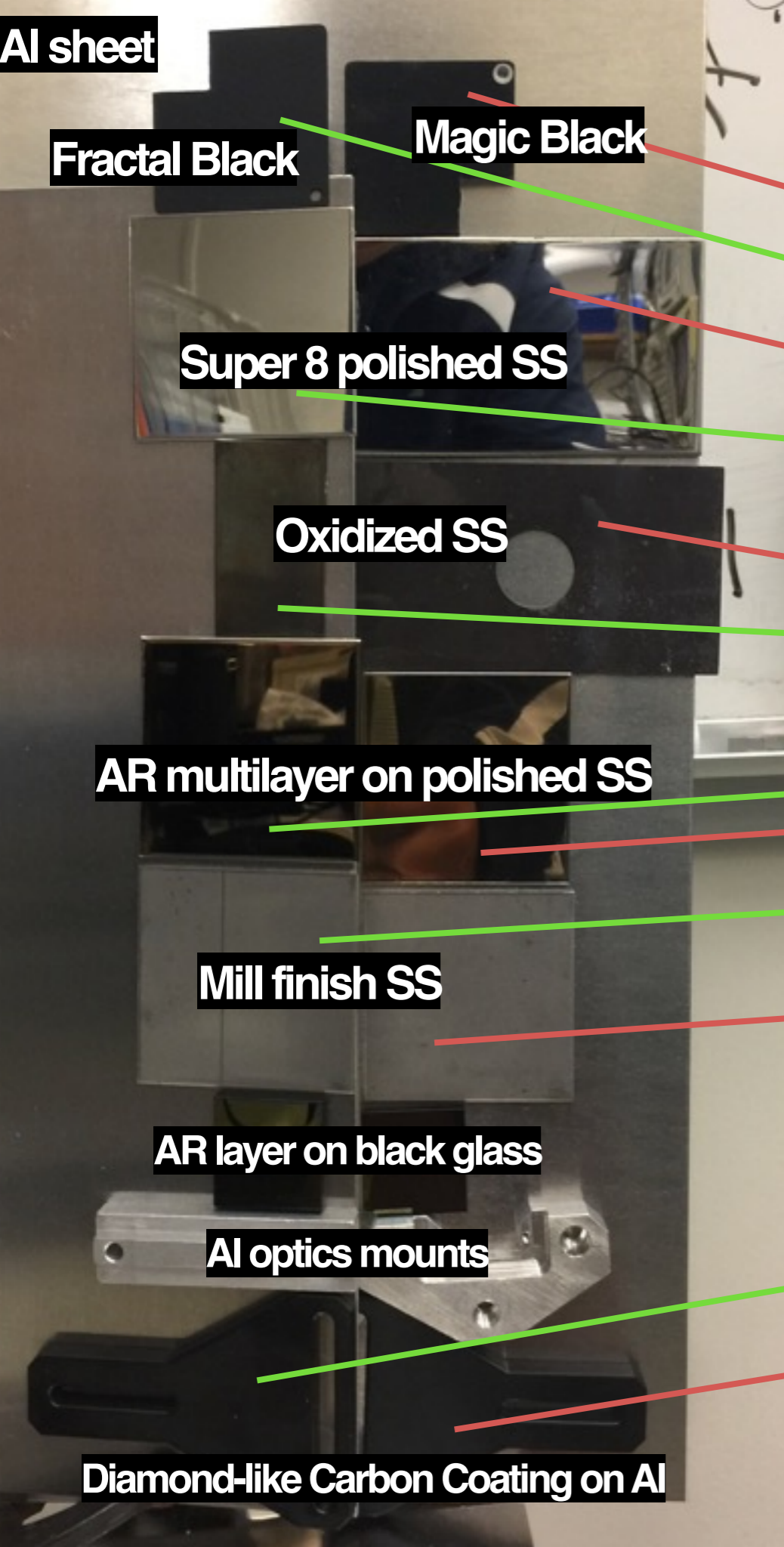
Aperture F22



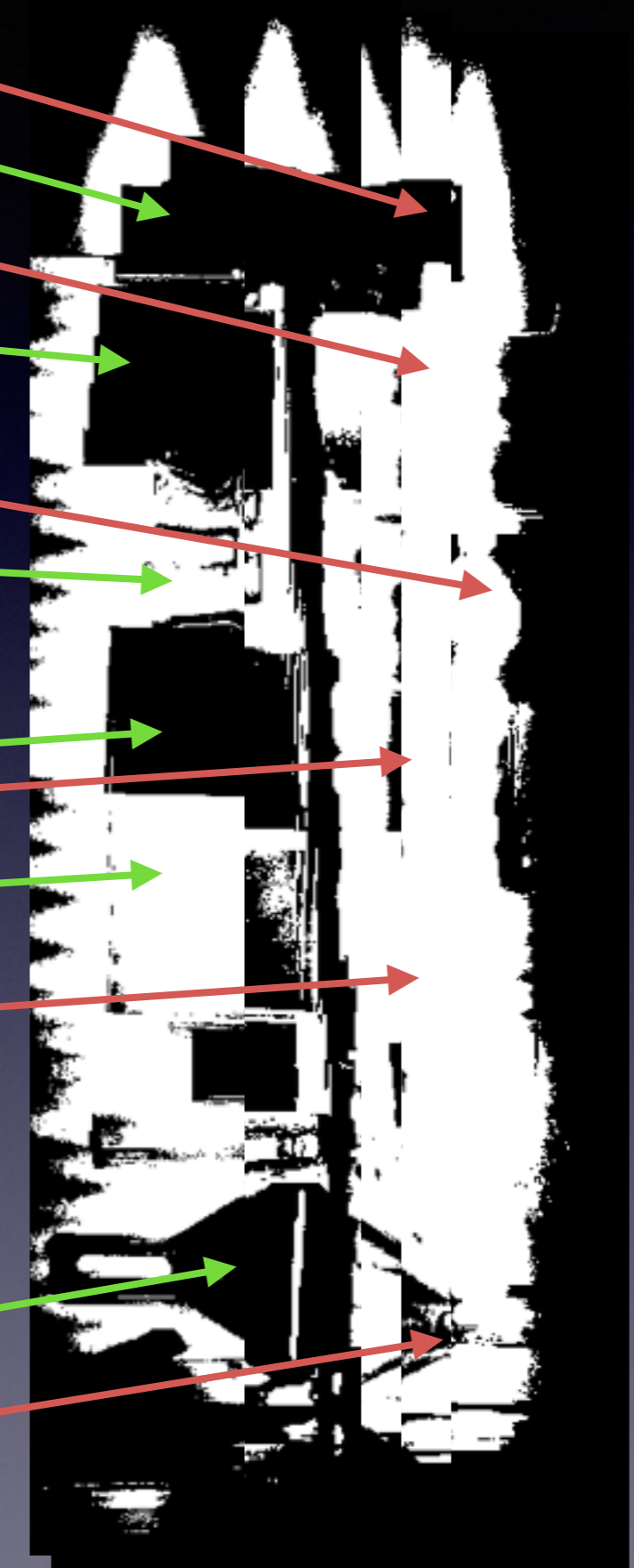
Grayscale



30% exposure threshold



Manually combined scans

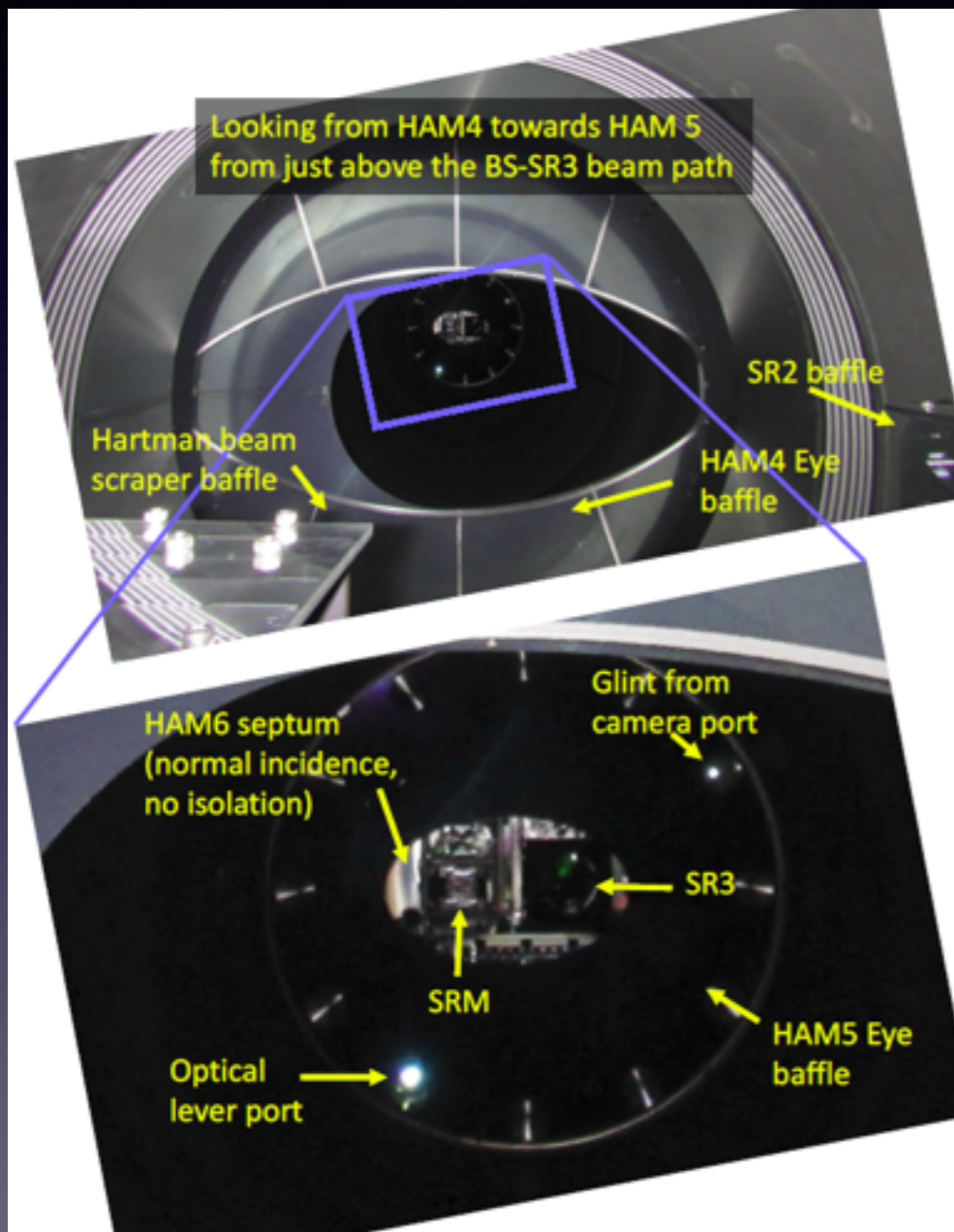


A single scan

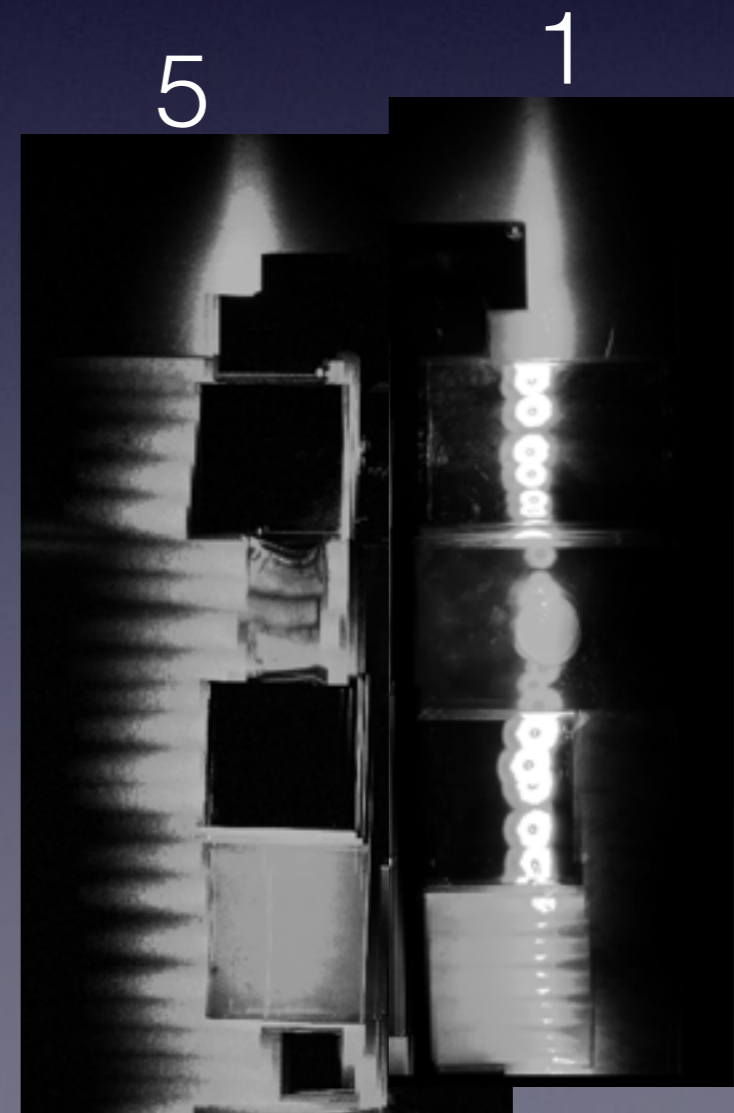
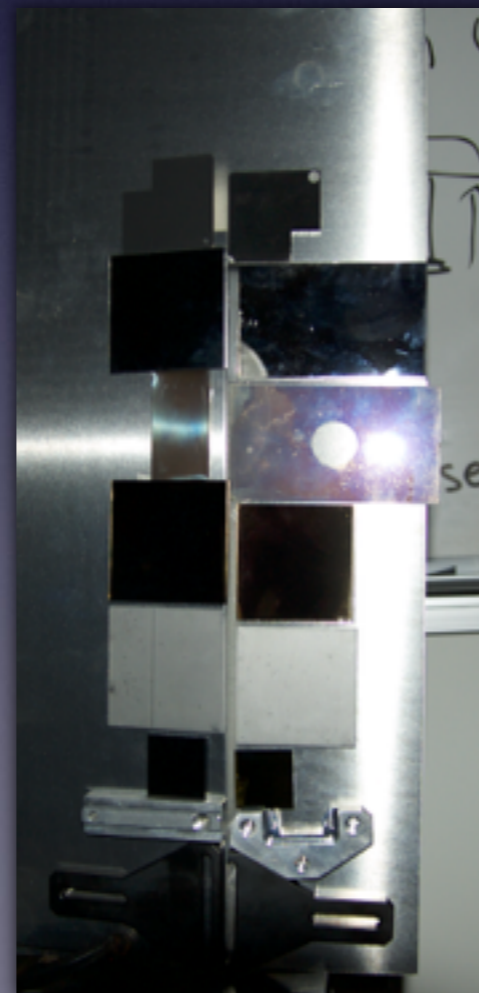


Improvements and Next Steps:

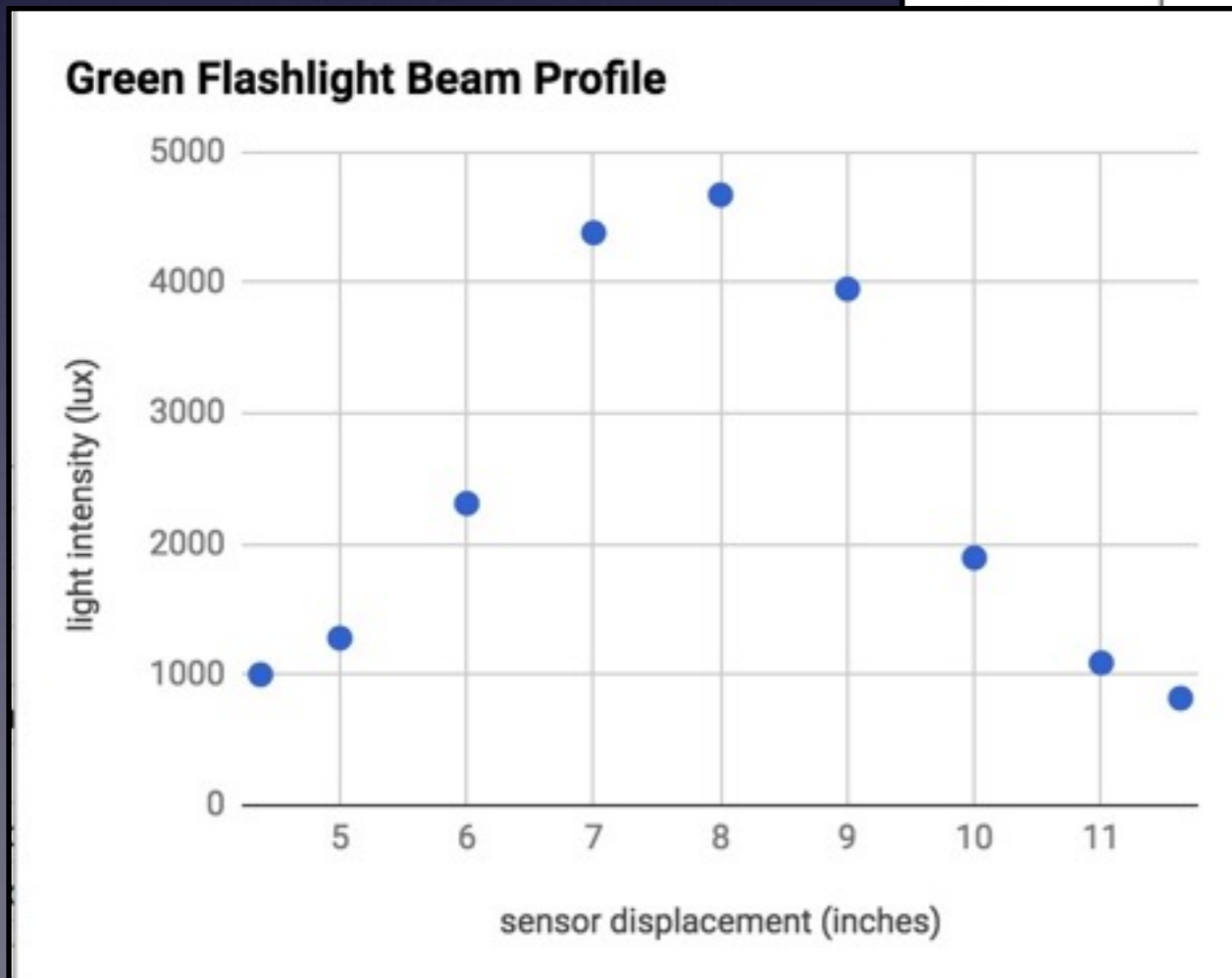
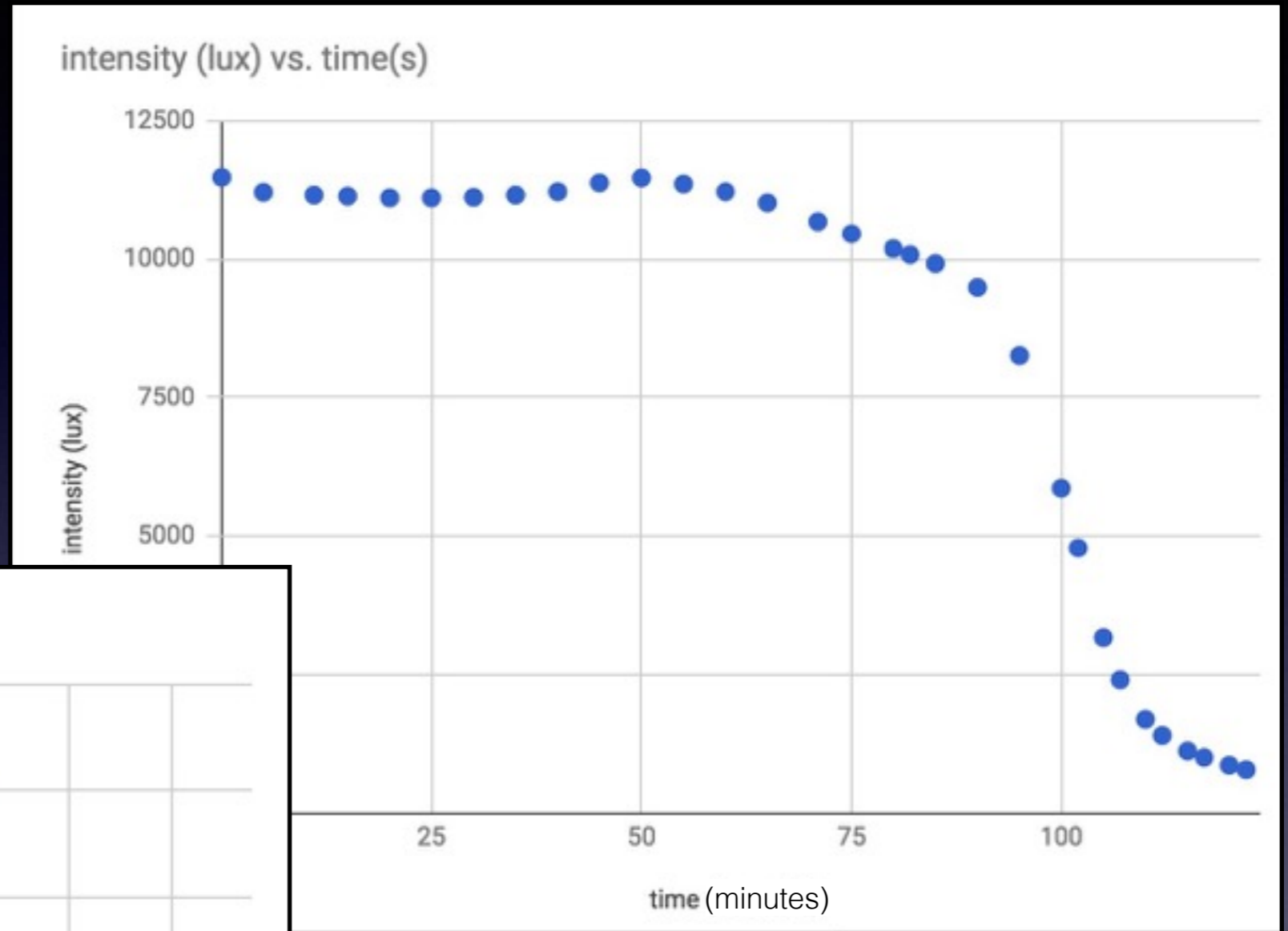
- Grayscale 2D scan
- Numeric Analysis
- XY Stage
 - Displacement accuracy
 - Automation



From DCC G1701019



Additional Information



Additional Slide

