



Aerosol Microscope

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Kansas State University /

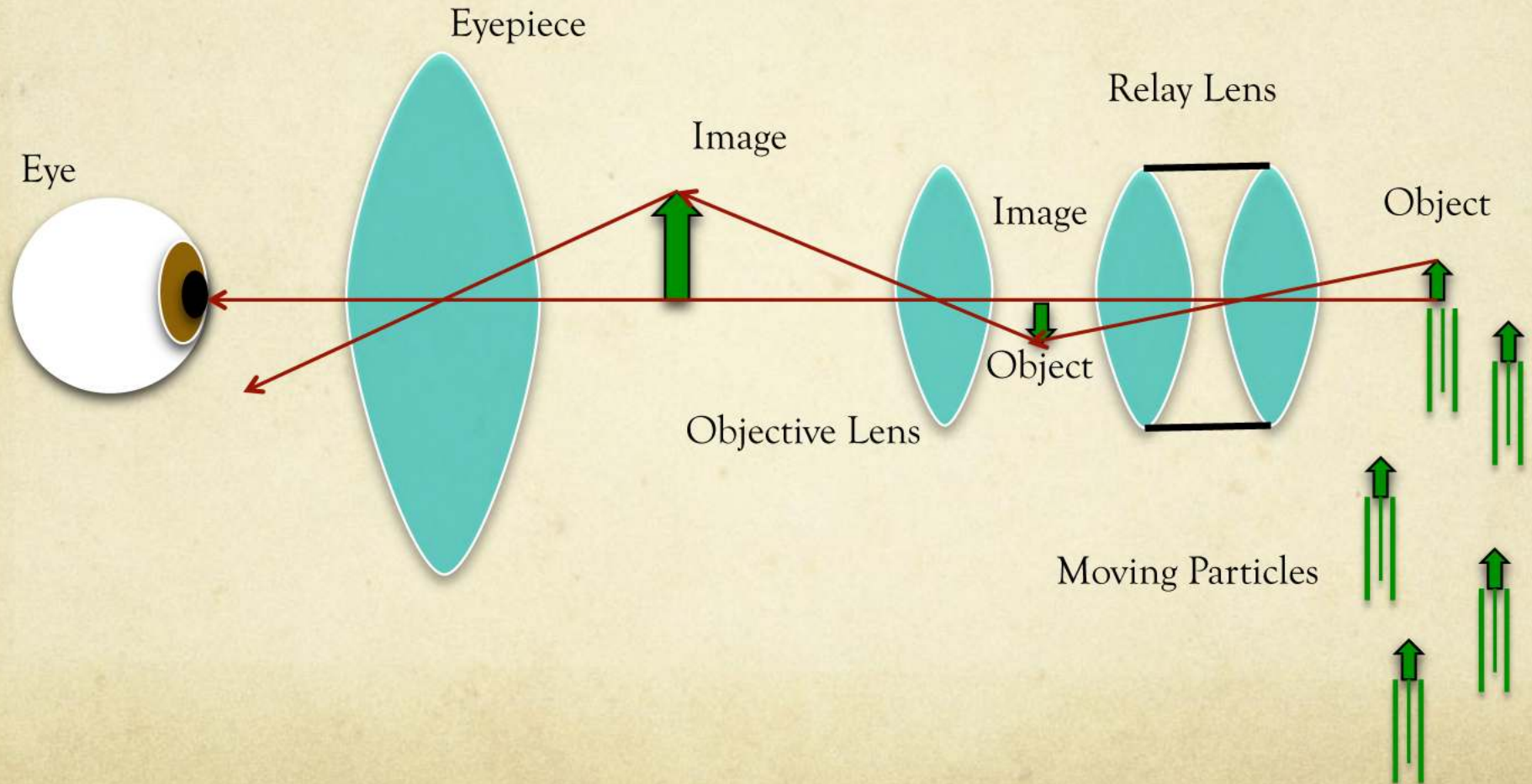
University of Puerto Rico at Humacao



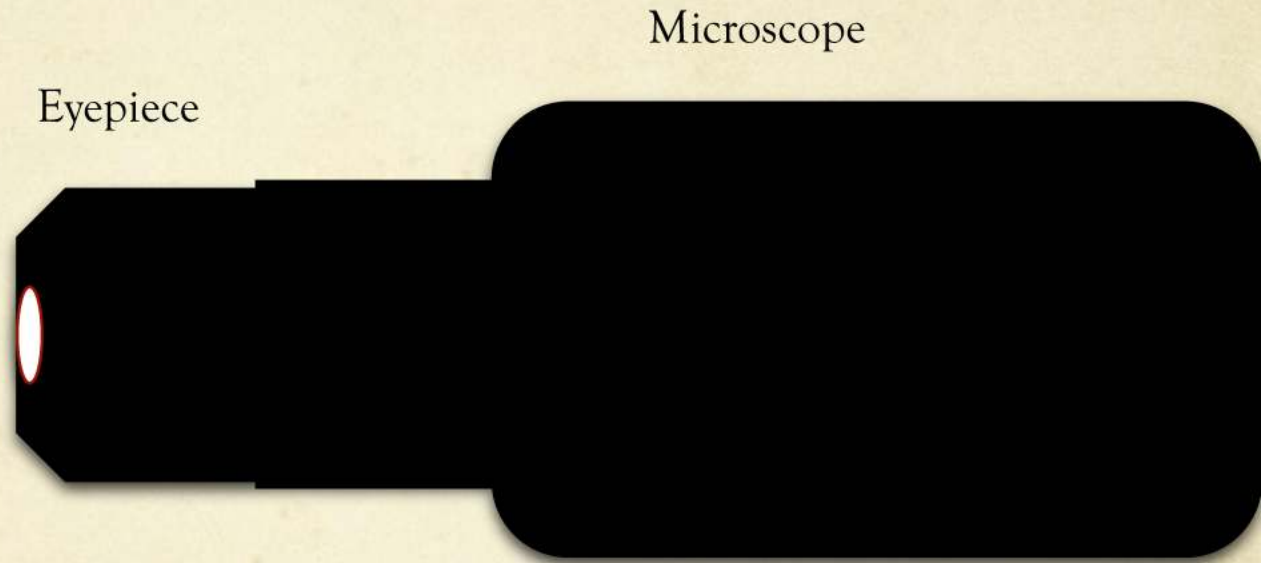
Objectives

- Be able to build a microscope that works at long distances
- Take pictures of micrometric particles while they are moving.
- Measure the size of these particles and be able to see their shape.

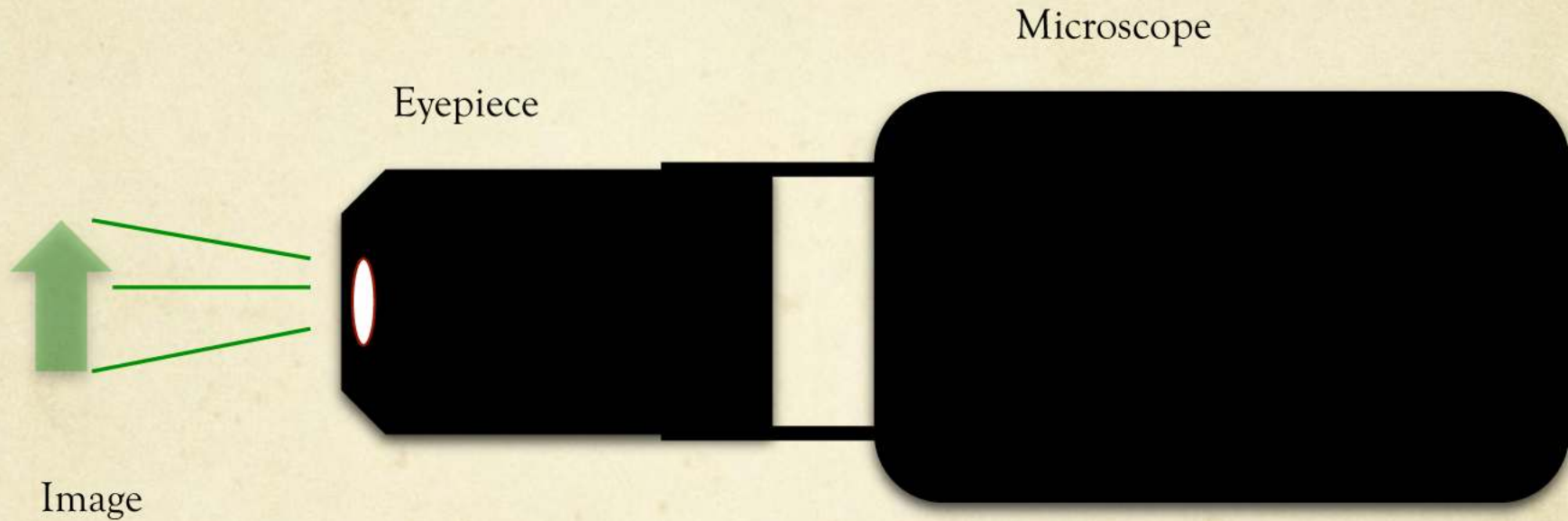
Compound Microscope



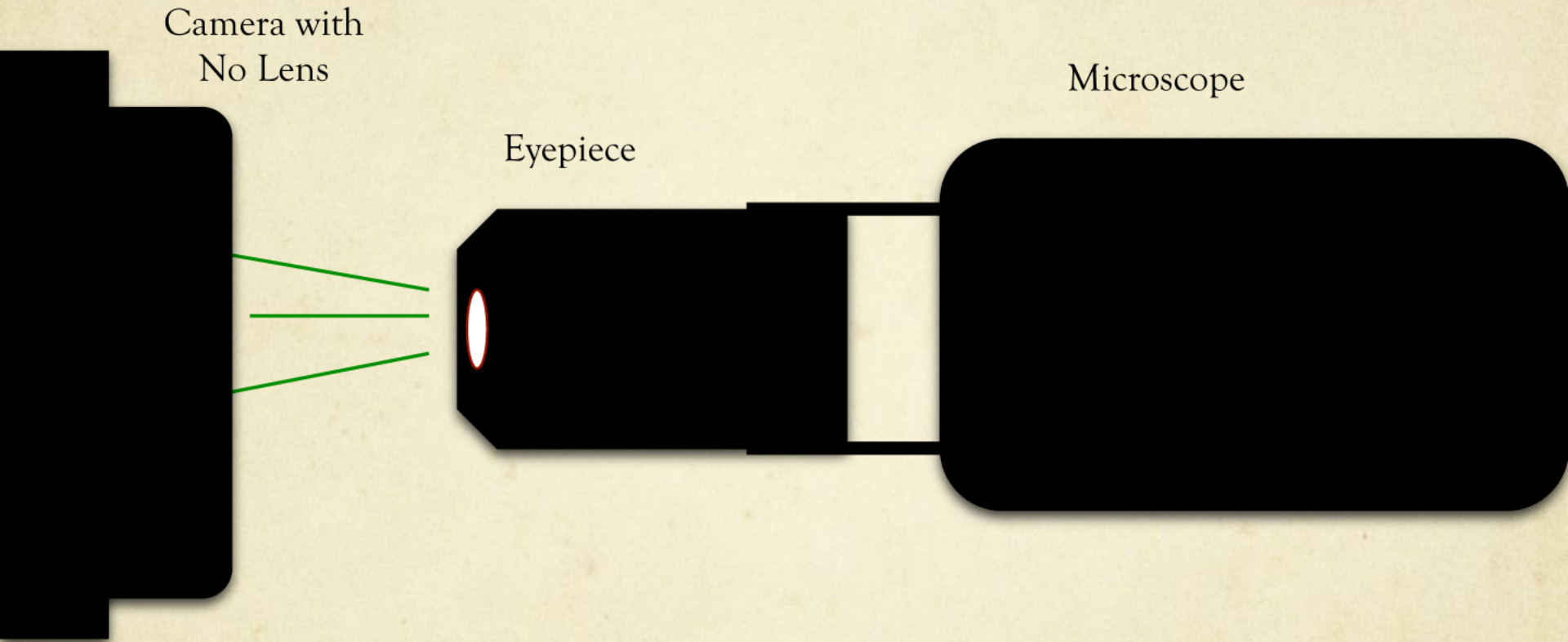
Eyepiece Projection



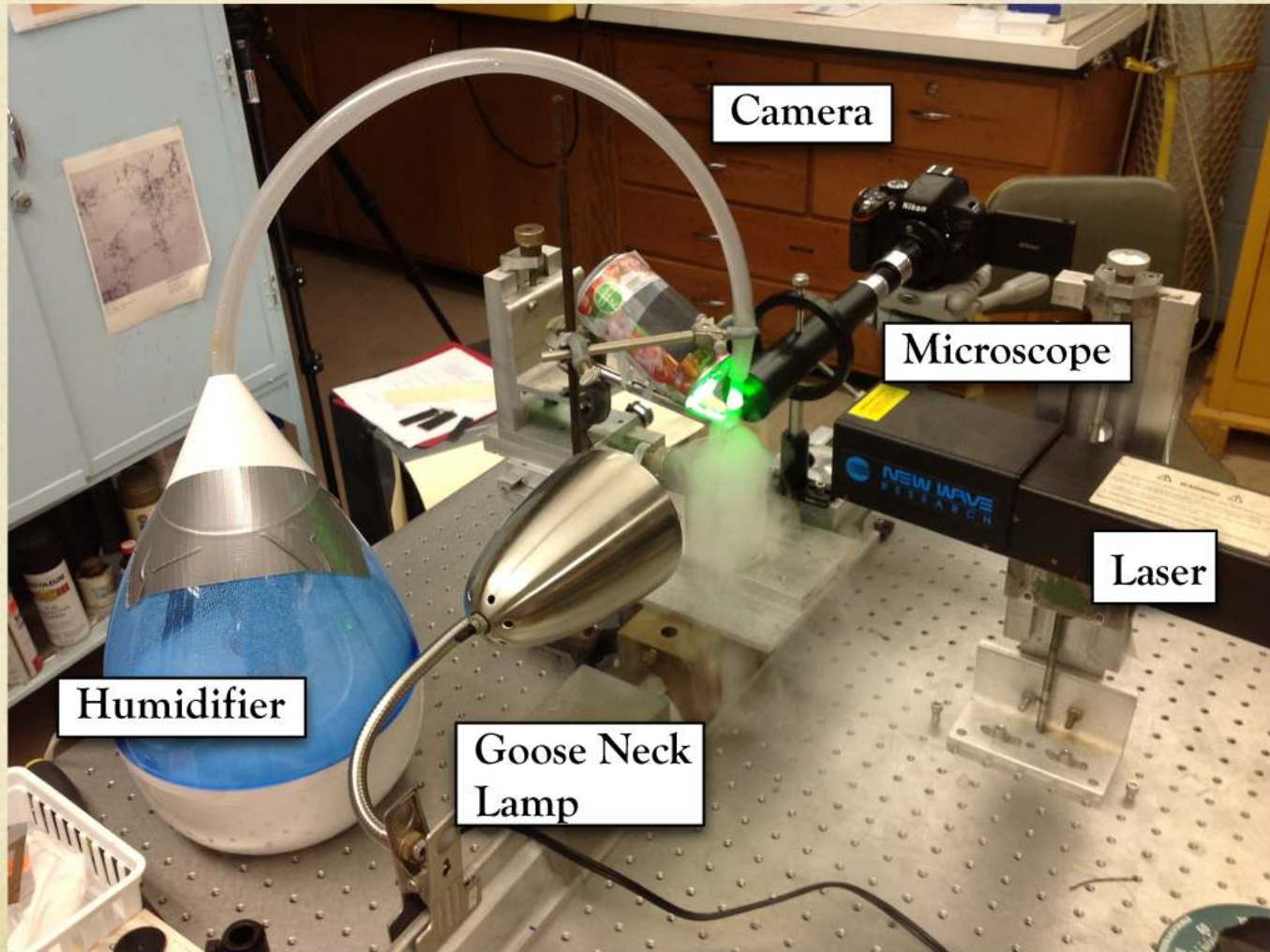
Eyepiece Projection



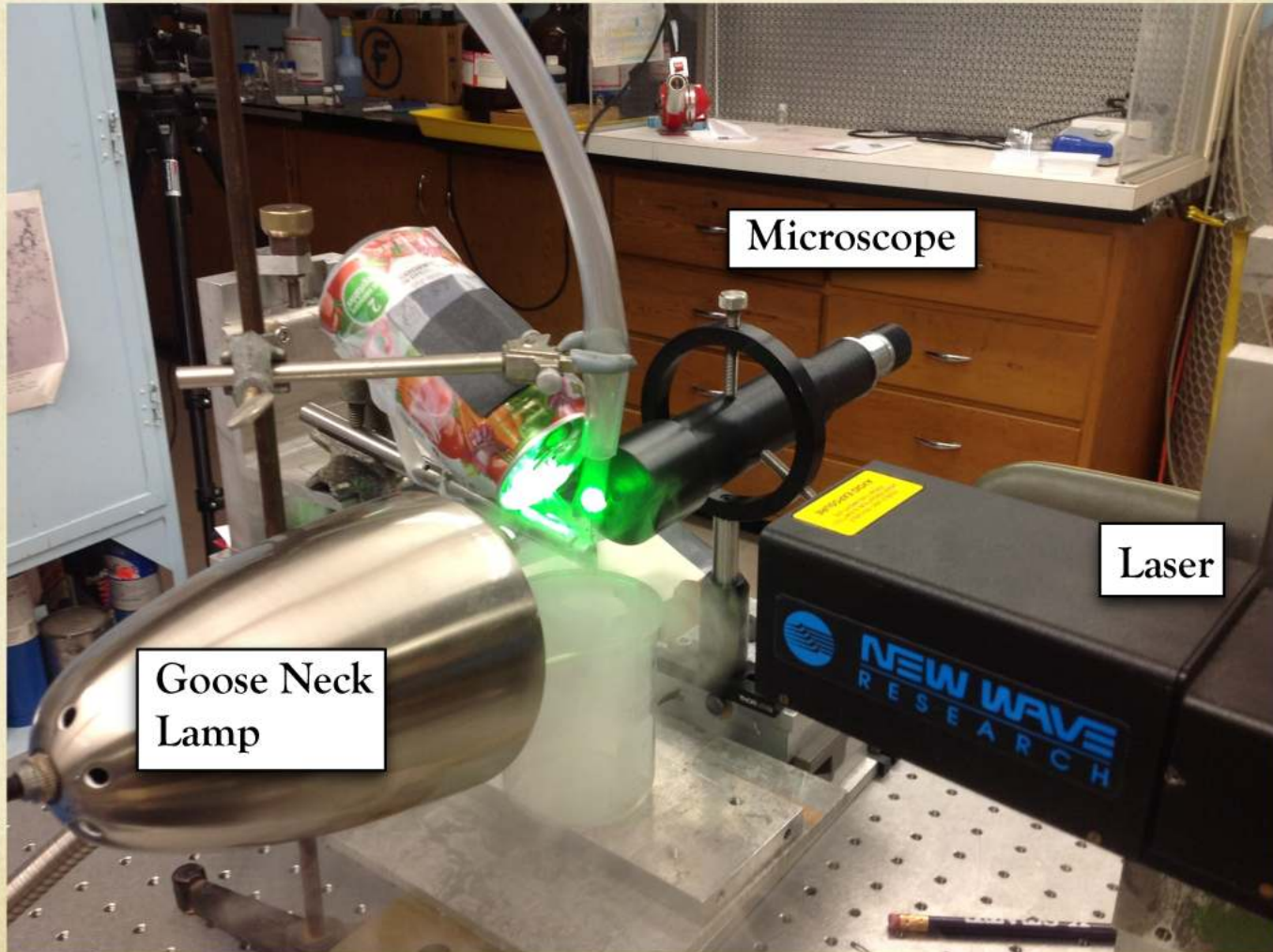
Eyepiece Projection



Experiment Setup



Zoom in





Data Images

Image of Microscopic Water Droplets

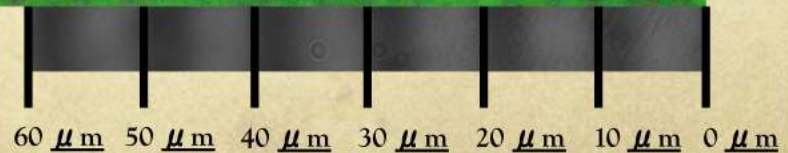
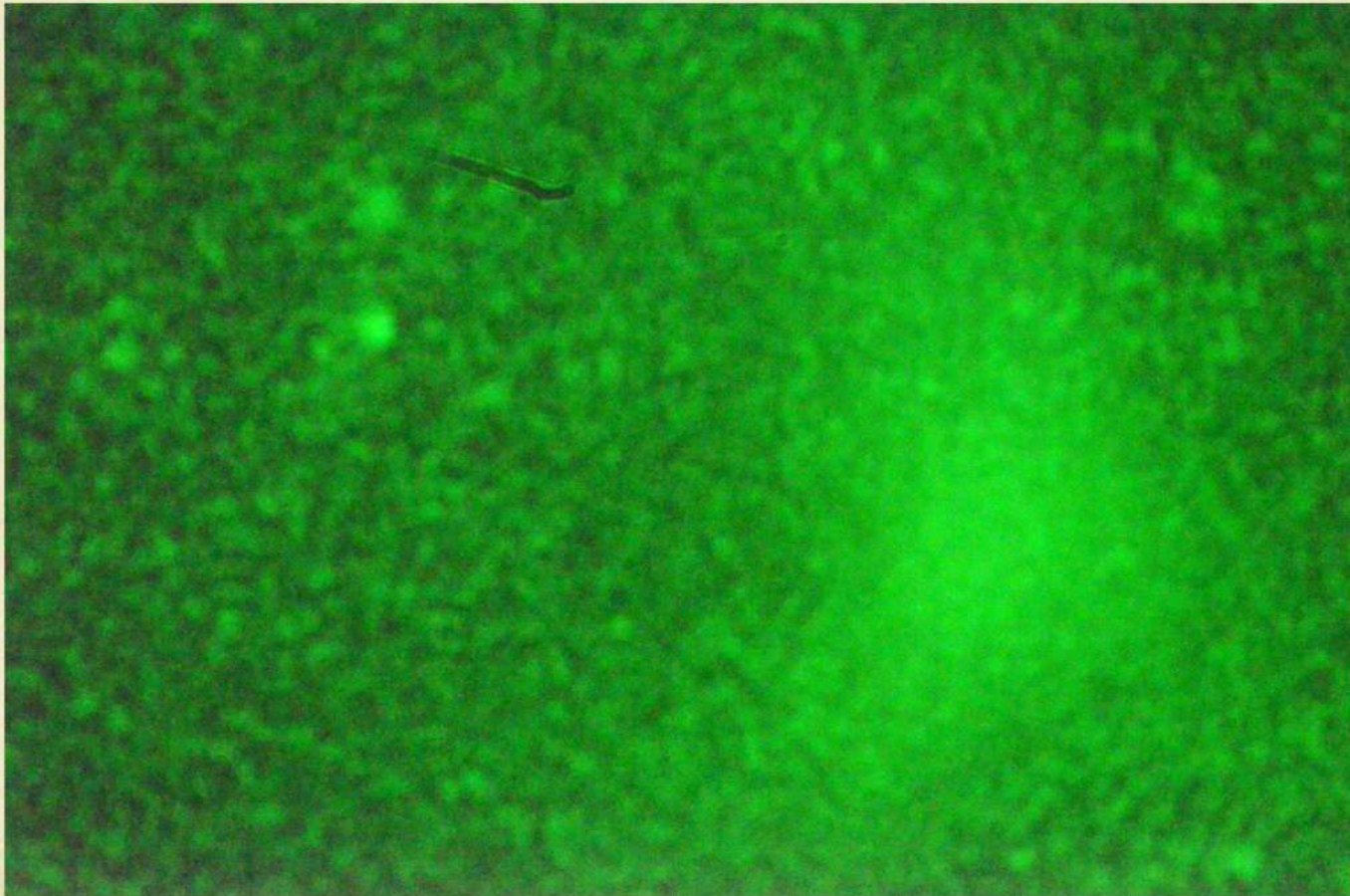
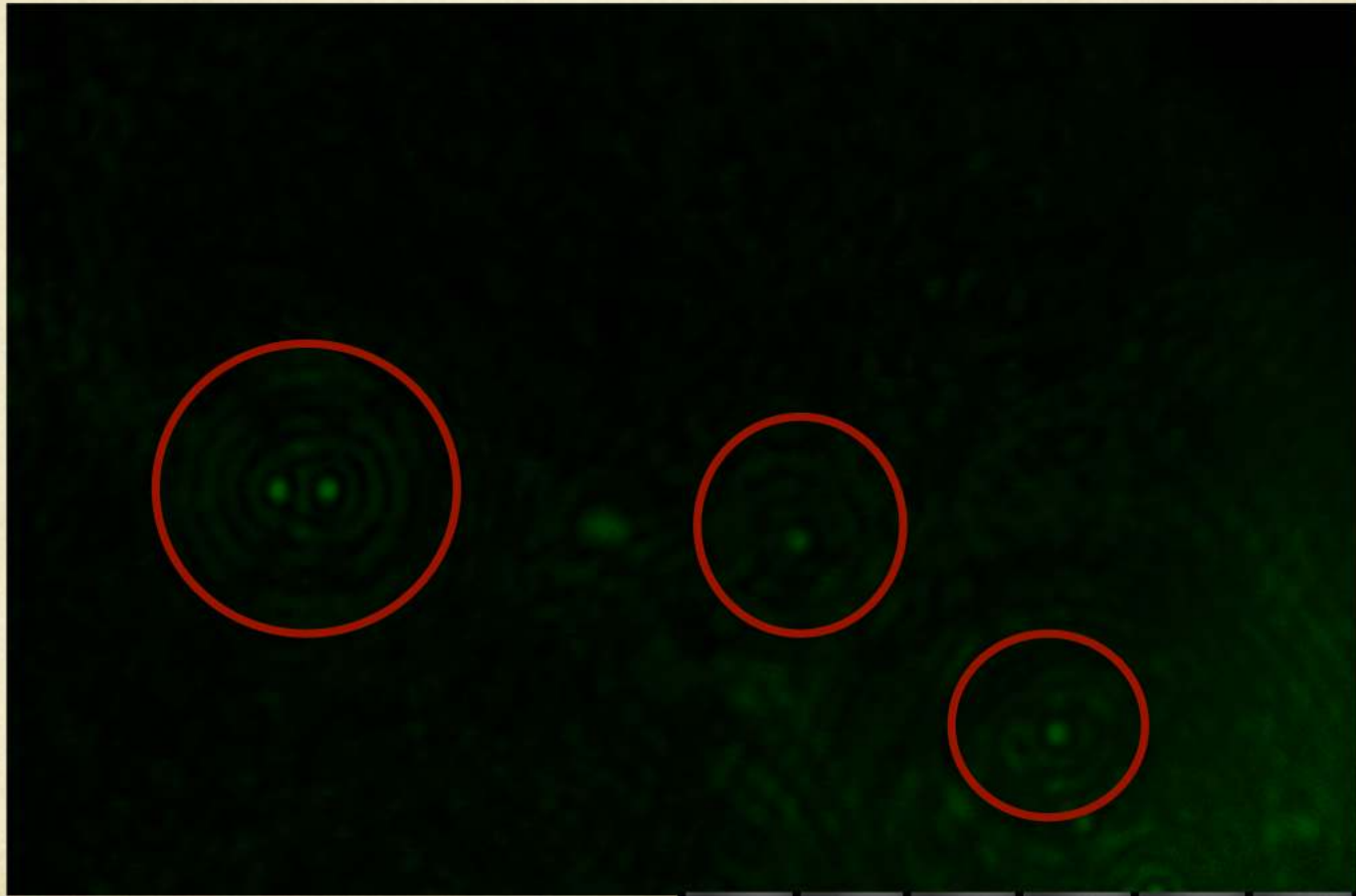


Image of low density flow water droplets

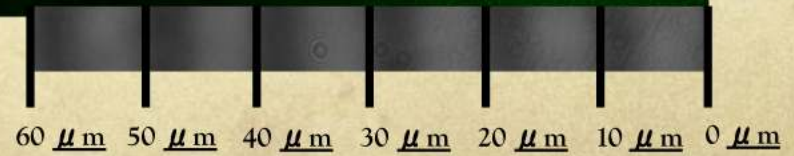
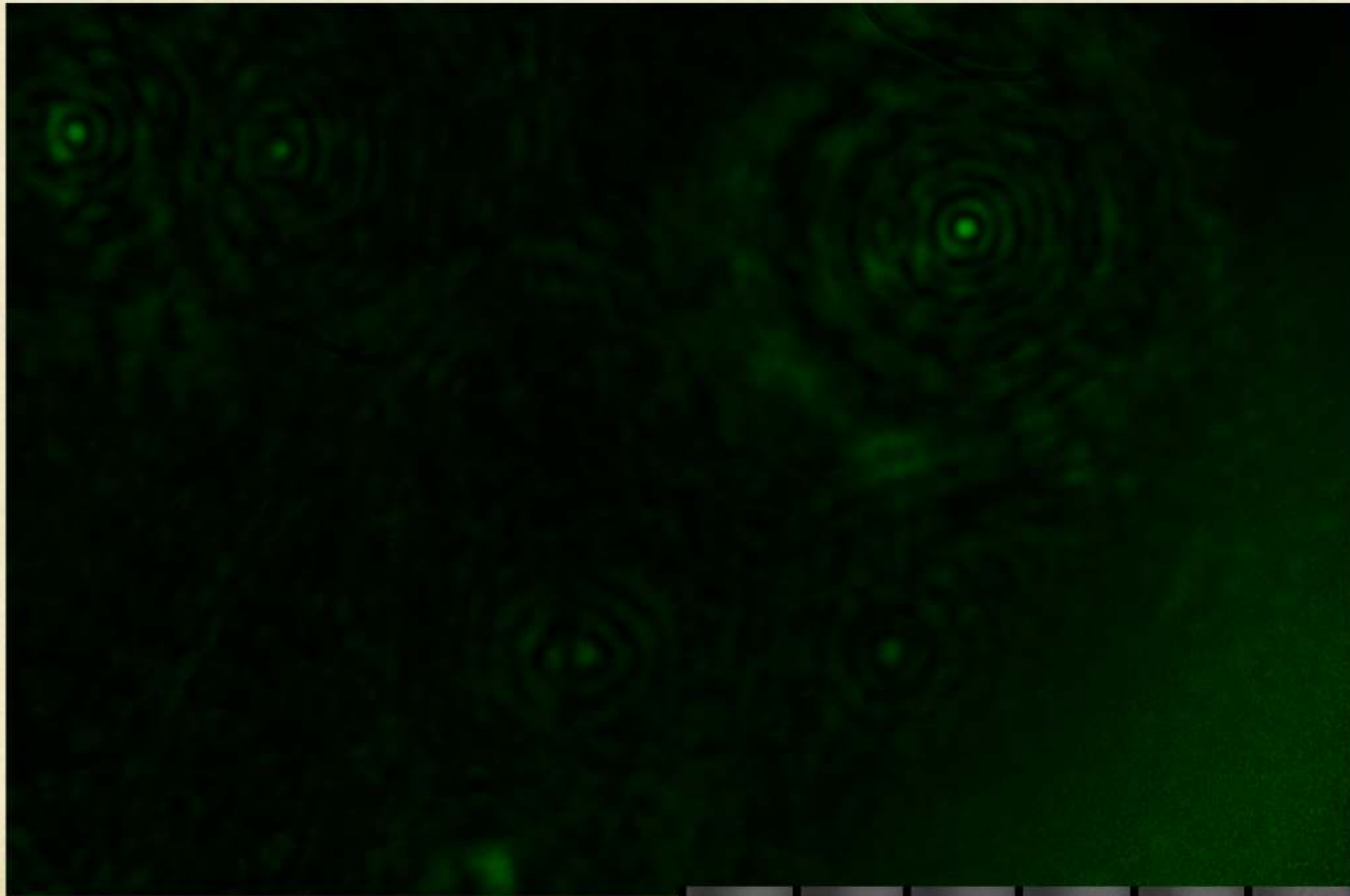


Filtering &

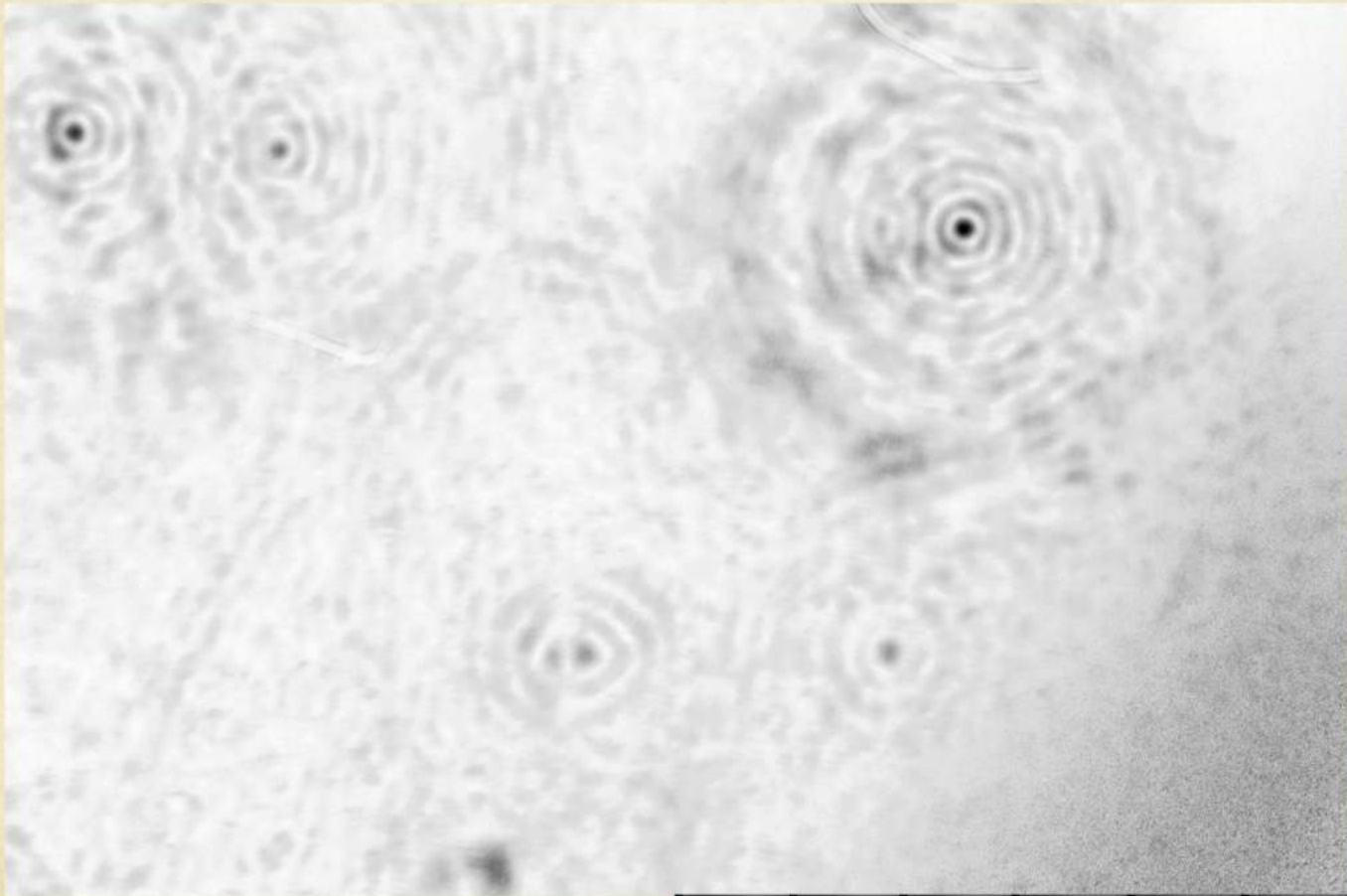
Filtering &
Measuring the
Water Droplets

Measuring the
Water Droplets

Raw Image

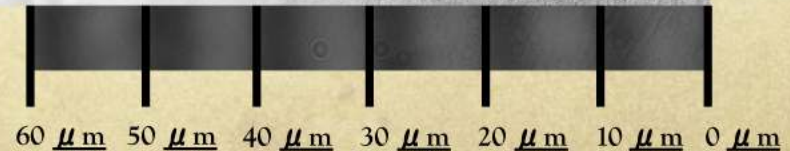
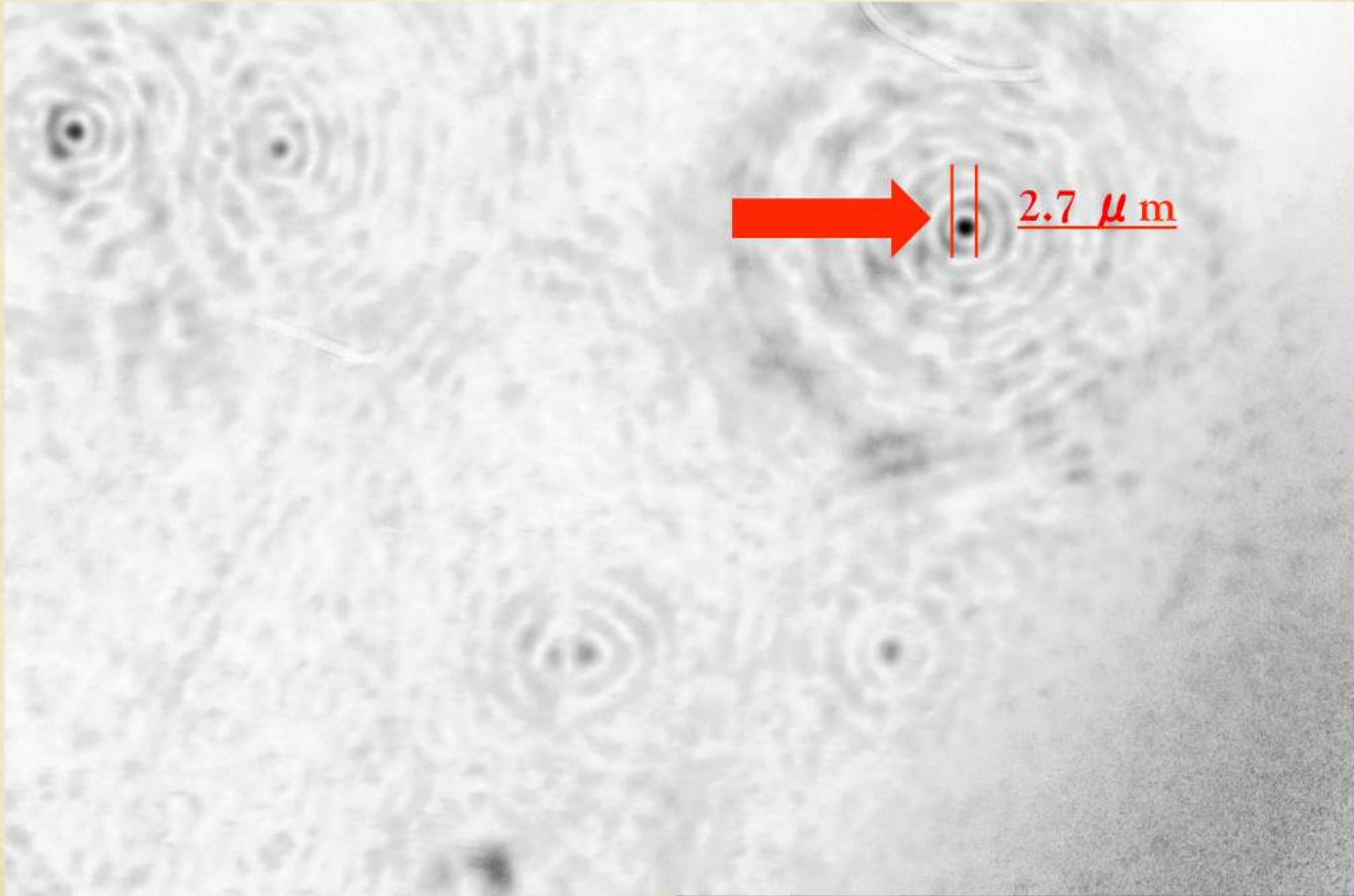



Unsaturated and Inverted Image



60 μm 50 μm 40 μm 30 μm 20 μm 10 μm 0 μm

Measure the Diameter of Water Droplets



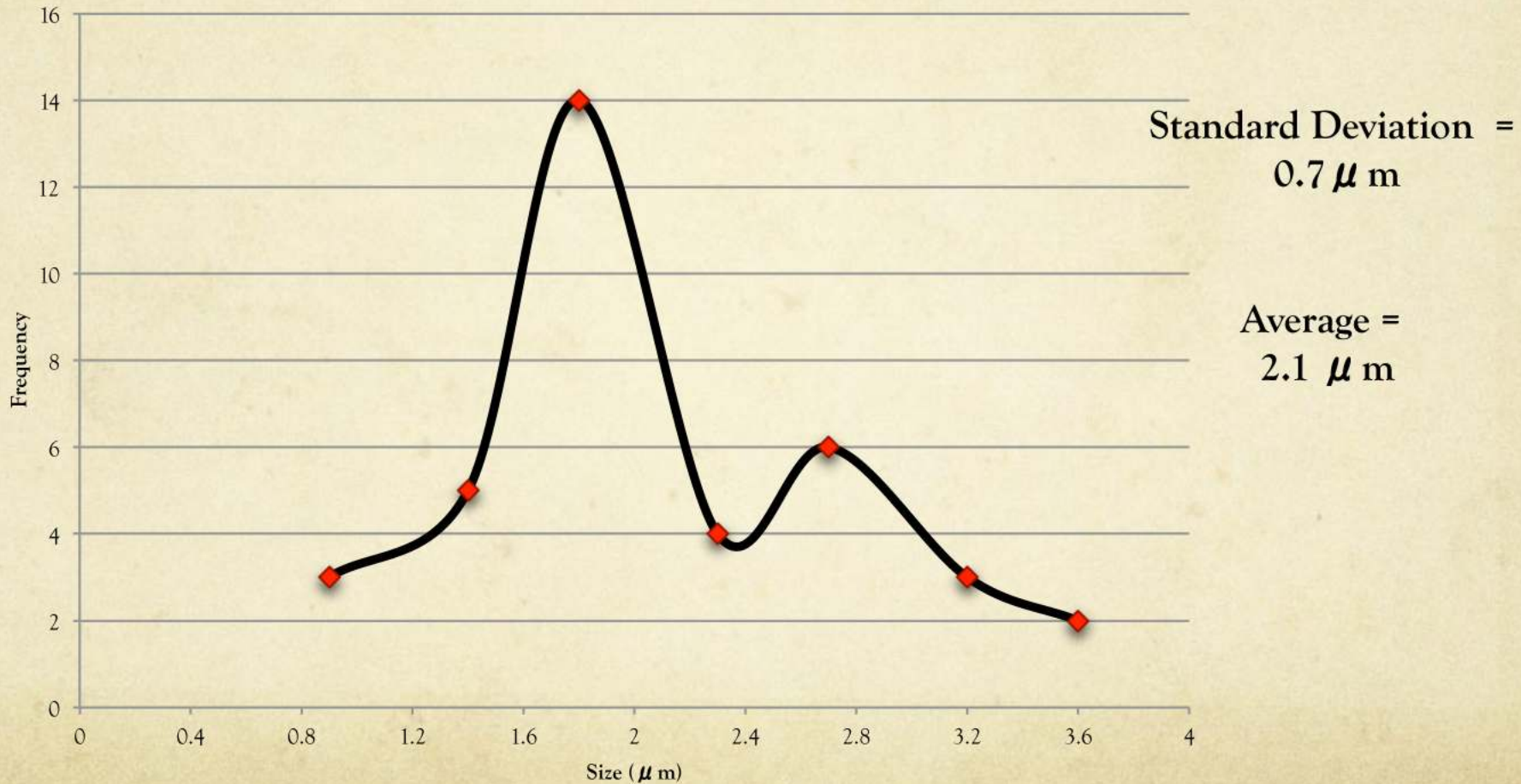


Results

Results

Results:

Frequency vs. Size



Conclusion

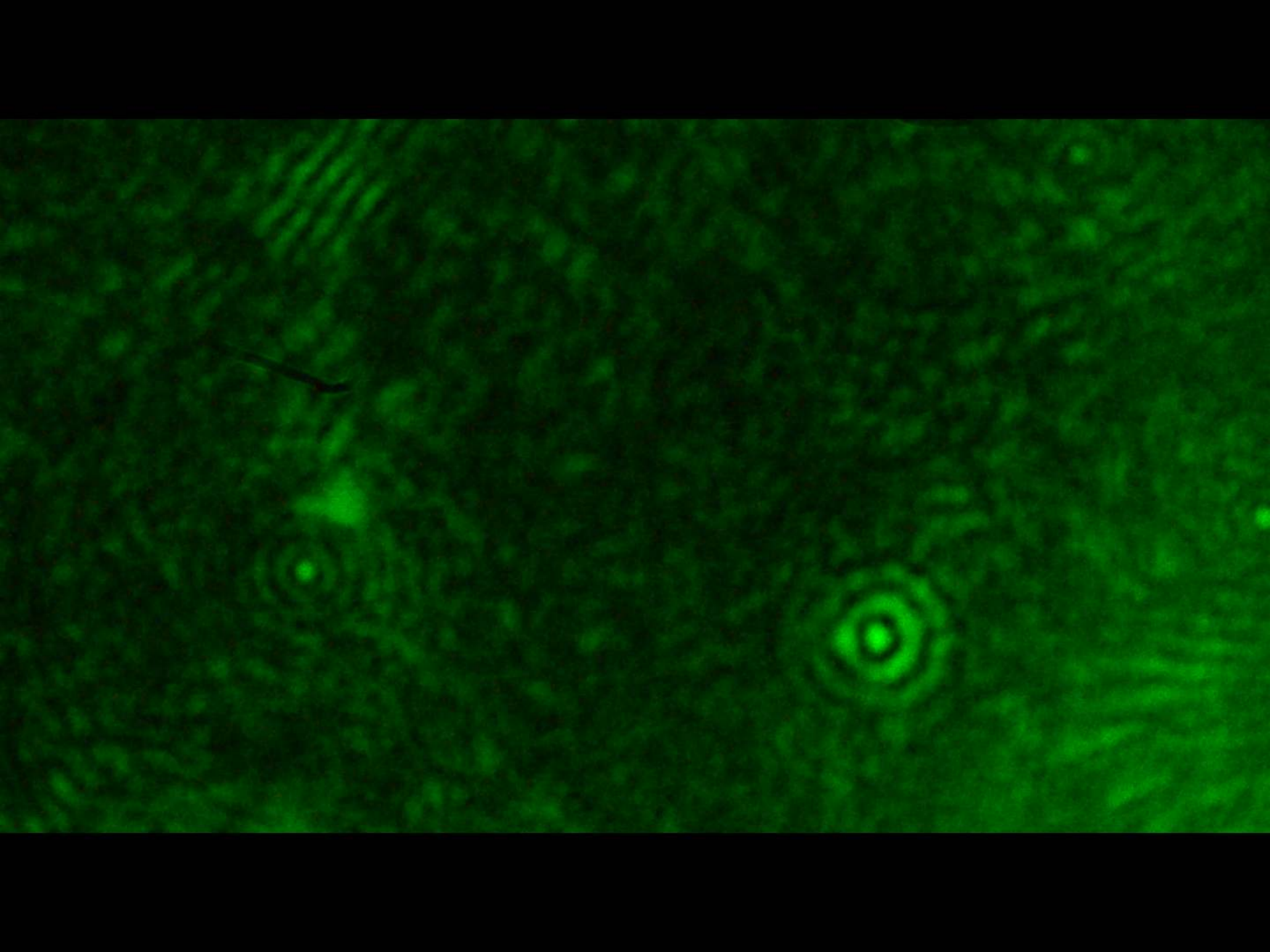
- A microscope that works at long distances was built
- Pictures of micrometric water droplets in movement were taken.
- Measurements were made and we saw spherical shape water droplets

Future Work

- Be able to take pictures of different micrometric particles
- Study the behavior of these particles

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Thank You!

