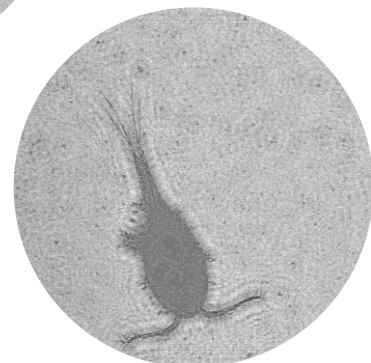
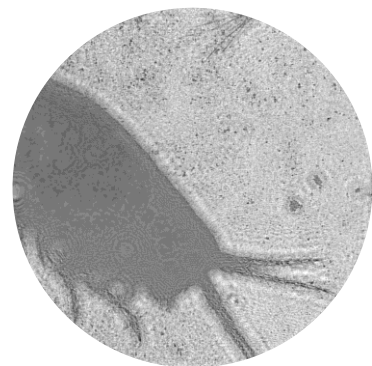


# HOLOSCOPE



A simple way to record hologram movies and explore tiny worlds with 4-dimensions!



**Introducing MetroLaser's Holoscope, Lensless Digital Holographic Microscope, a budget-friendly solution for education and basic research**

# HOLOSCOPE

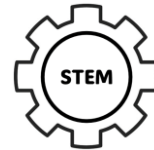
- For many years, producing holograms required expensive optical equipment, photographic materials, chemical processing, and unique skills.
- With the emergence of digital cameras, digital holography revolutionized holography and many of its applications.
- MetroLaser offers a revolutionary, low-cost, lensfree digital holographic microscope that makes producing holograms and hologram movies for biology studies super fun! It's like a magic box for viewing microscope slides and cuvettes in 3D and time, with snapshots followed by electronic focusing on different positions in the volume.
- To use it, connect to your laptop computer with a USB cable; small size and weight makes it completely portable.



**Educational-friendly**



**Research-capable**



**STEM education**



Holoscope

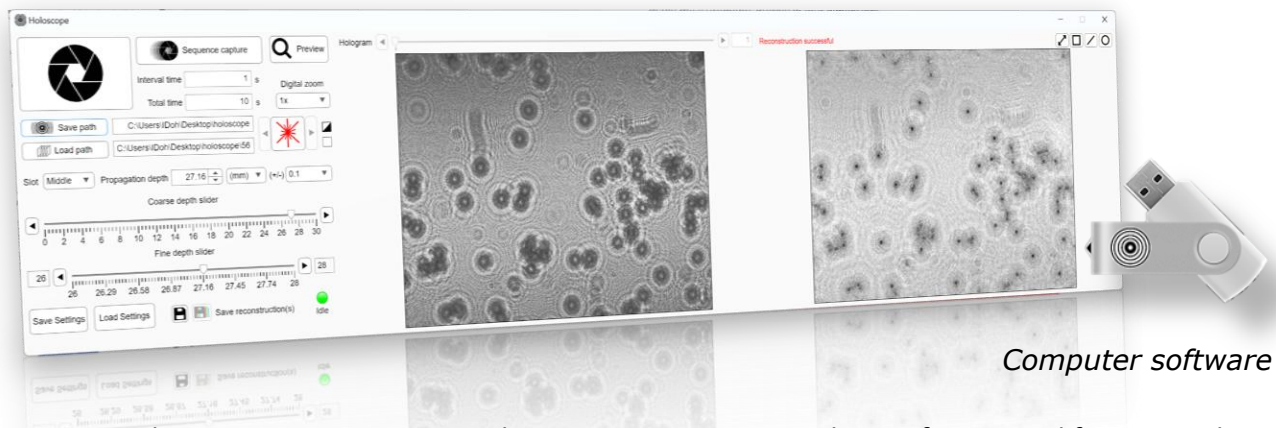
## Specification

Wavelength	650 nm
Lateral resolution*	1.17 – 1.40 $\mu\text{m}$
Magnification**	1X – 1.3X
Field of view***	7.564 mm x 5.476 mm (1X)
Imaging rate*	60 Hz
Pixel size*	1.55 $\mu\text{m}$
Pixel resolution*	4056 x 3040
Dimension (LxWxH)	135 mm x 110 mm x 111 mm
Weight	510 g

\*: Sensor dependent

\*\* : object distance dependent

\*\*\*: sensor and object distance dependent

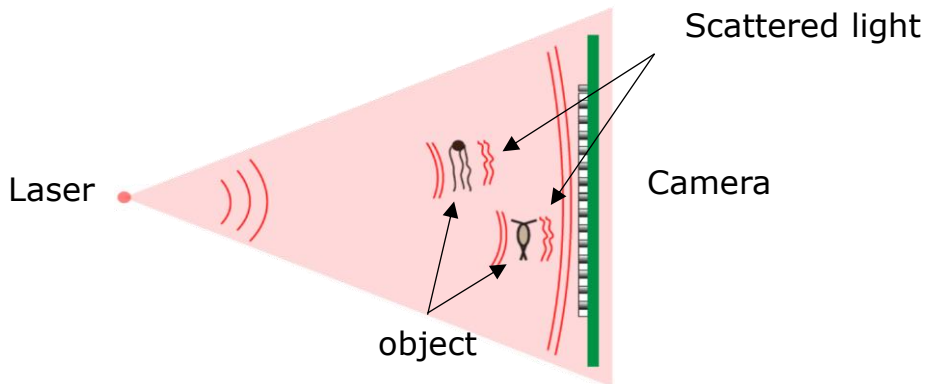


Computer software

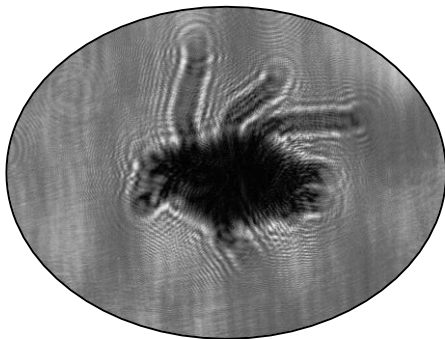
- A special computer program with an easy-to-use visual interface simplifies recording holograms and viewing and analyzing their captured 3D images.
- If you want to observe how tiny particles move without using a scanner or labels, MetroLaser's Hoscope and software can be the perfect tool, helping you make many measurements quickly in four dimensions.

## Working principle

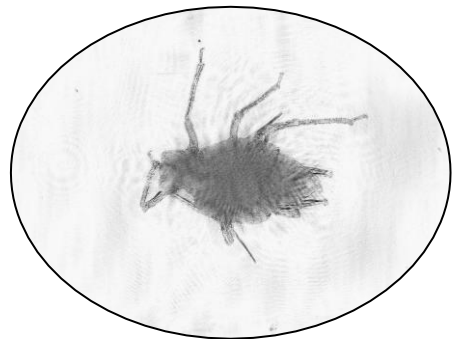
Holograms are made by mixing laser light scattered by objects, the object beam, with laser light coming directly from the same laser, the reference beam, and recording the resulting interference pattern. The resulting recording is the hologram. With in-line holography, which is employed by MetroLaser's Holoscope, the object beam is the light that is scattered by the objects, and the reference beam is the light that passes through the object field without being scattered. (This requires that the object volume be somewhat transparent, so that some of the light is left to act as a reference wave.)



A digital camera records these holograms. Instead of manually focusing like in regular microscopes, the recorded holograms are used to compute the three-dimensional images and display them on a monitor as we electronically choose image planes in the 3D volume, making viewing perfectly focused images throughout the 3D volume simple.



Hologram



Digitally focused