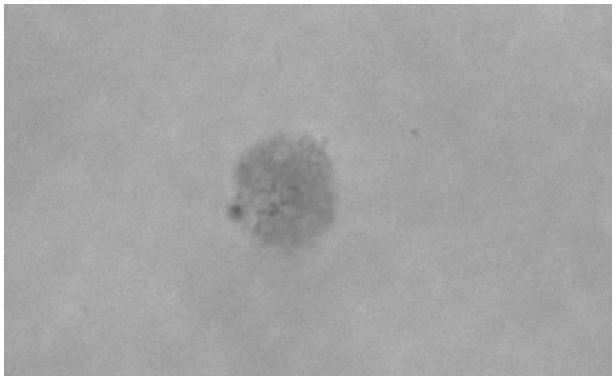
Actinix

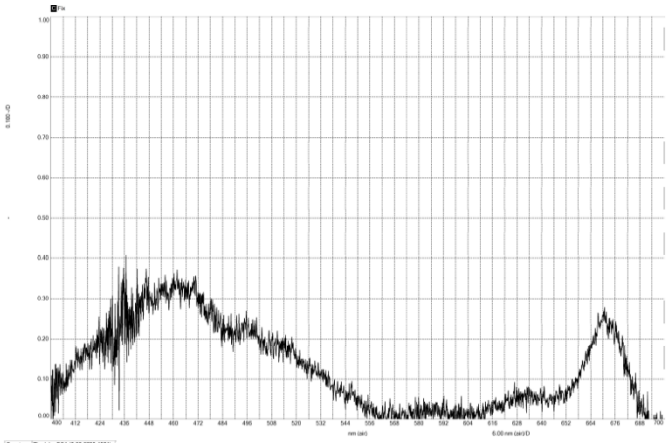
CYTORAY

Single Particle Spectroscopy

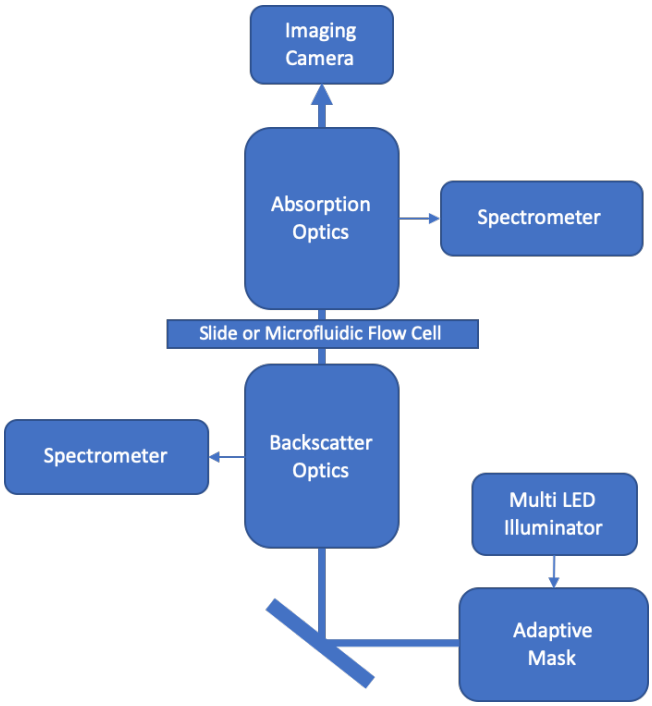
To improve the interpretation of satellite ocean color data, NOAA has defined a need for a tool that combines flow cytometric and microphotometric methods to measure the optical properties (absorption and backscatter) of individual aquatic particles. To meet this challenge Actinix is developing the Cytoray single particle spectrometer. The key innovation is the adaptive mask, which matches the shape of the sample to the optical probe beam from high-resolution real time video. The imaging optics superimpose this mask on to the particle under observation. This in turn allows for low background, accurate spectral measurements of individual particles. The probe beam can also track & measure drifting particles in quasi real time. The Cytoray tool is a microscope based platform with microfluidics and pulsed illumination using multiple LED light sources.



17 µ plankton particle (microscope mode)



Absorption spectrum (400 – 700 nm)



System schematic

Specifications (subject to change)	
Sampling modes:	**Microscope slide and flow cell**
Wavelength range:	**400 – 700 nm**
Particle Size range:	**1-100 microns**
Accuracy:	**1% (absorption)**
Flow cell fluid speed:	**5 mm/sec (approx.)**
Particle tracking speed	**1 mm/sec (nominal)**

Cytoray product models will begin to be available in the summer of 2021:

Cytoray 1: Microscope mode; particle tracking

Cytoray 2: Flow & microscope modes; particle tracking

Cytoray 3: Microscope mode; no tracking

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Made in Felton, CA www.actinix.com **Contact:** jimjacob@actinix.com **(831) 440-9388**