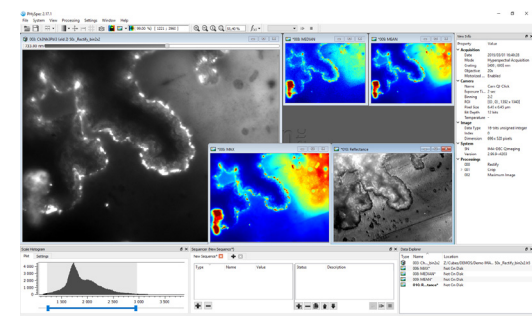
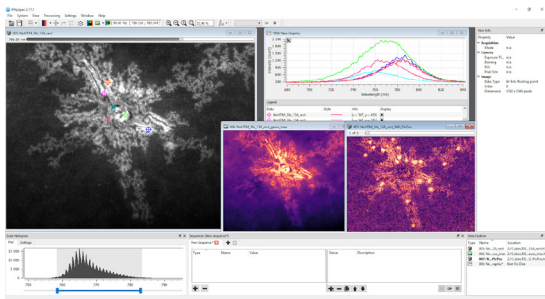
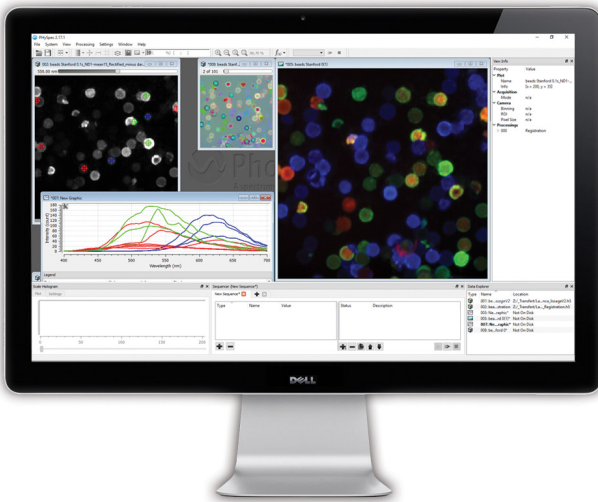


# PHySpec™

## NATIVE ANALYSIS SOFTWARE



PHySpec is Photon etc.'s proprietary software for instrument and camera control. Designed for simplicity, it's easy to install and presents a straightforward user interface. PHySpec provides a sequencer with measurement automation as well as analytical tools for rapid extraction of sample information. Its multithreaded architecture expedites processing complex algorithms as well as the acquisition, visualization, import, and export of data.

### FEATURES OVERVIEW

- Data acquisition tools
- Automatic filter sweeping and image capture synchronization
- Automation of acquisition, processing and exportation of data
- Meta information associated with the data cube
- Normalization
- Creation of sequences to be executed (like simplified macros)

### ACQUISITION

- Measurement automatization with a sequence of acquisition
- Z-stacking
- Stitching of images to view entire samples at high resolution
- Time series acquisition - custom loops
- Control of additional external hardware

### DATA DISPLAY

- Autoscale
- Colour map
- Overlays
- False colour images
- Image histogram
- Scale bar

### DATA PROCESSING

- Optical aberration correction (stretching, translation)
- Image stabilization
- Basic statistics (mean, median, min/max, standard deviation)
- Region selection (ROI)
- Spectrum extraction
- Cube normalization from different sources
- Arithmetic operations (unary, binary, linear combination, etc.)
- Principal component analysis
- Cropping and binning in x, y, and z over data cube
- Gaussian filter
- Possibility to call external programs such as Python and Matlab scripts for data processing or control third-party devices

### DEVICE CALIBRATION

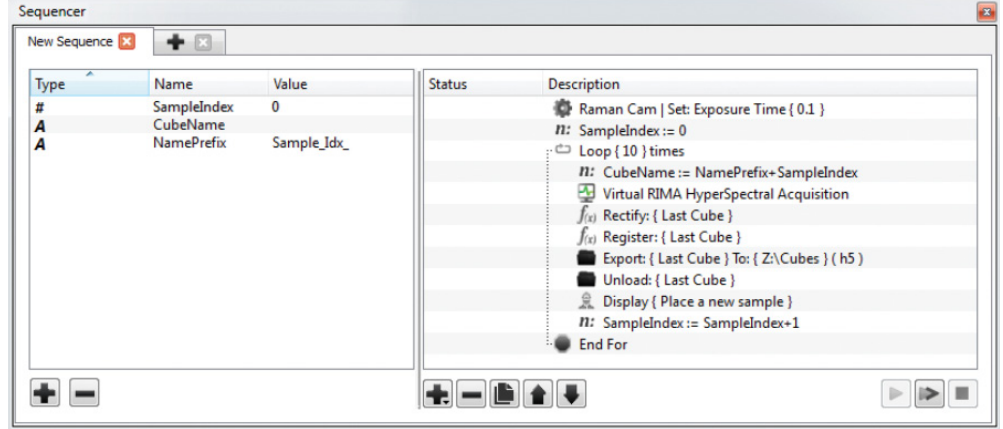
- Automatic calibration using spectral lamp

### FILE FORMATS

Data cubes	HDF5, FITS (open formats for analysis with third-party software such as ImageJ or MATLAB)
Images	HDF5, FITS, PNG, TIFF, JPEG
Spectra	HDF5, CSV, JPG, PNG, TIFF, BMP
Sequences	SEQ (XML)
	PHySpec supports instruments from other manufacturers for integration into complete systems from Photon etc.: QImaging - Andor - PCO - BaySpec - Hamamatsu - Princeton Instruments - Sentech - Nüvü

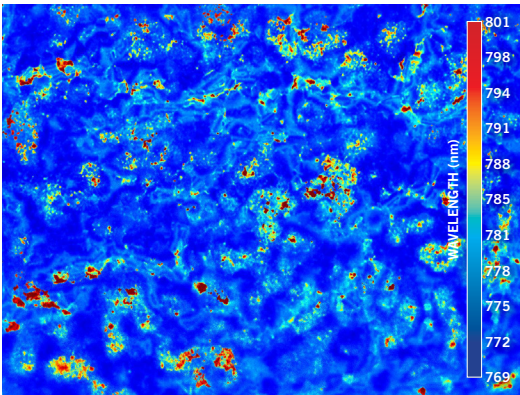
## SEQUENCE OF ACQUISITION – AUTOMATED MEASUREMENTS

This sequence will acquire 10 cubes, perform basic processing on them (rectification and registration), and save them to a specified folder. Between each cube acquisition, PHySpec™ asks the user to place a new sample on the imaging platform. Variables are used to build a unique cube name for each acquisition.

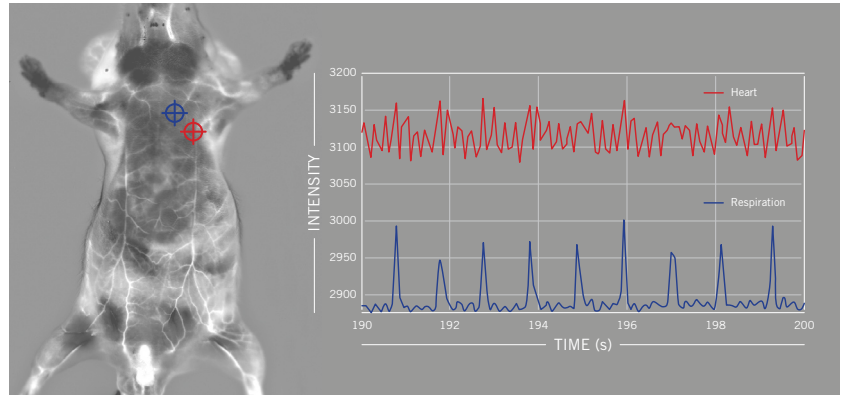


## ANALYSIS EXAMPLES

### MAXIMUM POSITION MAP



### VIDEO MONITORING



### OVERLAY

