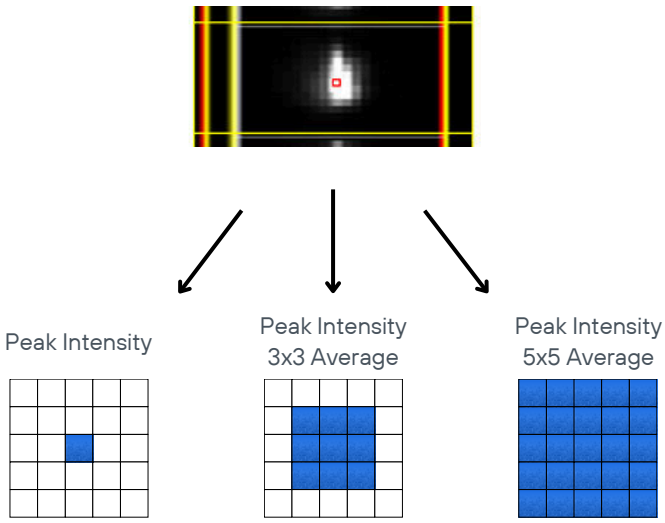
Kytos Parameter Descriptions

Event Definition

The pixel intensities representing a particle image will exceed the detection threshold in a series of sequential frames as it flows across the camera imaging region. Each of these frames represents an event element.

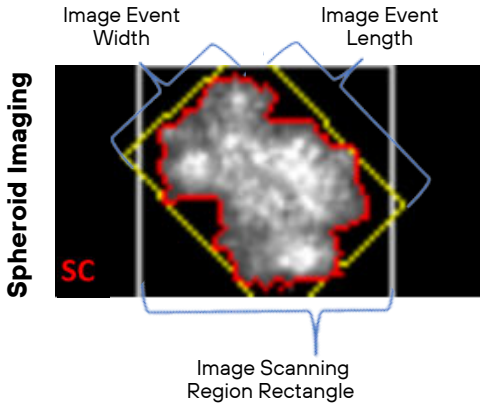
Event Intensity

Event intensity analysis uses up to a 5x5 array of pixels centered by the pixel with the brightest intensity.



- **First Frame** – Frame number in which the first event element is detected
- **Frames in Flight** – The number of event elements comprising an event
- **Stream ID** – Stream in which the event is detected
- **Event Width** – The maximum number of frame column pixels in any row in which 1 or more pixels exceeds threshold over the course of an event's Frames in Flight
- **Event Number** – Number of event as it was processed
- **Peak X/Y Coordinate** - The X (frame pixel column) divided by Y (frame pixel row) location in the image of the Peak Intensity pixel.
- **Peak Intensity** - The brightest pixel value seen during the event Frames in Flight.
- **Peak Intensity 3x3 Average** - The average intensity of the 3x3 pixel array centered by the event Peak Intensity pixel.
- **Peak Intensity 5x5 Average** – The average intensity of the 5x5 pixel array centered by the event Peak Intensity pixel.

Veloview Parameter Descriptions

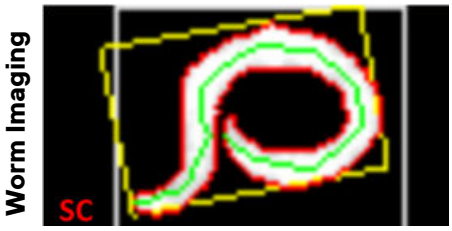


Scatter Channel Image

- A rotated minimum area bounding rectangle is used to determine spheroid length (imLength) and width (imWidth).
- Perimeter encompasses all pixels with intensities greater than the threshold.

Image Derived VeloView User Parameters

- **Image Event Length (imLength)** – The length of the rotated minimum area rectangle bounding the event object. (units: µm)
- **Image Event Width (imWidth)** – The width of the rotated minimum area rectangle bounding the event object. (units: µm)
- **Image Event Eccentricity** – Image Event Width divided by Image Event Length (units: %) Eccentricity of a perfectly circular event object is equal to 100%
- **Image Event Area (imArea)** – Calculated from pixel x (column) and y (row) coordinates comprising the event object perimeter
- **imArea Fluorescence positive (%)** - Number of pixels exceeding fluorescence threshold divided by pixel area within perimeter boundary
- **Image Integrated Intensity** - The sum of intensities of all pixels within the event image scanning regions of each channel (units: relative)
- **Image Integrated Intensity Size Normalized** – Image Integrated Intensity divided by Image Event Area (units: relative)
- **Rectangularity** - The ratio of the object's area to the area of the object's minimum bounding rectangle.
- **Circularity** - The ratio of the object's area to the area of a circle that has the same perimeter length as the object



- The axial spine of an event object is a specialized feature that can be most accurately evaluated for elongated, wormlike objects.

- **Image Event Spine Length** – The length of the axial spine of elongated, wormlike event objects. (units: µm)
- **Image Event Spine Width** – the average width of elongated wormlike event objects, calculated as Image Event Spine Length divided by Image Event Area. (units: µm)
- **Image Event Curl** – A measure of the relative degree to which an elongated wormlike object is curled up, calculated as Image Event Length divided by Image Event Spine Length. (units: %) *Curl of an extended, uncurled event object is equal to 100%*