

## Process Description:

“**Microtubule dynamics classification**” takes in microtubule plus-end tracks and classifies each track into shrinkage/pause/growth events. For a description of the algorithm, see **Applegate et al. Quantitative image analysis software for the measurement of microtubule dynamics. J Struct Biol, 176, 168-184 (2011).**

## Parameter Descriptions:

### Input channels:

This allows you to select which channels containing tracks you want to post-process. Select the channels by clicking on them in the "Available Input Channels" box and then clicking "Select>" to move them to the "Selected Channels" box. You can unselect a channel by clicking the "Delete" button.

### Remove tracks at the beginning and end of the movie:

This allows you to exclude tracks starting at the first frame of the movie or ending at the last frame of the movie from the calculation of dynamical parameters, e.g. lifetime.

### Reclassification schemes

The two drop-down menus allow you to choose between various schemes to reclassify forward and backward gaps.

#### *Forward gaps reclassification schemes:*

This scheme is used when reclassifying forward gaps as either pause events or undetected growth events.

1. **Using the 2-3 frames before pause (local):** this is the reclassification method described in Applegate et al. 2011
2. **Using the full growth sub-track velocity (local):** this is a similar method to the previous one except the full growth sub-track is considered instead of the last frames before the event.
3. **Unimodal thresholding:** this method calculates a global threshold using the forward gaps speed distribution.
4. **No reclassification**

#### *Backward gaps reclassification schemes:*

This scheme is used when reclassifying backward gaps as either shrinkage events or pause events.

1. **95<sup>th</sup> percentile of forward gap speed distribution:** this is the reclassification method described in Applegate et al. 2011  
The two following schemes reuse the threshold calculated from the forward gap reclassification assuming **Unimodal thresholding** was selected as the forward gaps reclassification scheme.
2. **Unimodal thresholding with comet latency correction**
3. **Unimodal thresholding without comet latency correction**
4. **Using the fluctuation radius:** this method reuse the fluctuation radius set in the tracking step as the cut-off for reclassifying backward gaps into shrinkage/pause events

**Make statistics histograms:** If checked, histograms will be generated for various distributions (speed, lifetime, displacement) of the growth events, forward gaps and backward gaps.