



Start

Load cometparams.ini file

Run type?

Process existing data

New Calculation

Start from saved point?

yes

Load previous data

no

Create new harbinger nodes at surface (repulsive force will be gradually ramped up to full)

Look for harbinger nodes that are ready to promote to full nodes. Crosslink these new nodes to near neighbors

Sort nodes into thread process groups, keeping near nodes in the same group if possible

Add jobs for calculating repulsion and link forces to thread queue and process queued tasks in concurrent worker threads

Move nodes according to calculated forces.

Remove links that have broken (i.e. tensile force above threshold)

Eject nodes that have entered nucleator. Move and rotate nucleator

Confine within virtual coverslip?

yes

Eject nodes (and nucleator) if entered coverslip.

no

Are we at a frame (save point)?

yes

no

Finished?

yes

Stop

Load symmetry break frame to set break axis and bitmap scaling

Are we a worker processes?

no

Fork worker processes

Are we tracking node trajectories?

no

Have we loaded track data yet?

no

Load reference frame (TRACK_MAX_RANGE), select nodes

Create VTK object

Load frame to process

Calculate and save report info

Calculate and save bitmaps

Calculate and save VTK image

no

Finished?

yes

Stop

Have we already broken symmetry?

yes

Save Data

Save Bitmaps

Add nodes to statistics and save report files

Have we moved beyond the node update range (DIST_TO_UPDATE * RADIUS)?

yes

Mark nodes that are far from nucleator as no longer needing calculation

Has bead moved more than its radius from its starting position?

yes

Symmetry just broke. Calculate symmetry break axis

Fork new process in background to calculate bitmaps for frames prior to symmetry breaking from new camera position

main process

forked process