

Supplementary Information

Kinesin and Myosin Motors Compete to Drive Rich Multi-Phase Dynamics in Programmable Cytoskeletal Composites

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Movie S2: Sample time-series of active actin-microtubule composite exhibiting Class 2 dynamics.

Movie S3: Sample time-series of active actin-microtubule composite exhibiting Class 3 dynamics.

Figure S1: Temporal color maps of sample time-series showing different Classes of dynamics.

Movie S1: Sample time-series of active actin-microtubule composite exhibiting Class 1 dynamics. The example time-series used to demonstrate Class 1 behavior in Fig 2A, 3 and 4A can be found here: <https://drive.google.com/file/d/1wqcTqv d v-hdK3-u1ksO7MwaIJs5QZBF/view?usp=sharing>. Shown are actin filaments (green) and microtubules (red) undergoing slow microscale restructuring.

Movie S2: Sample time-series of active actin-microtubule composite exhibiting Class 2 dynamics. The example time-series used to demonstrate Class 2 behavior in Figs 2A, 3 and 4A can be found here: <https://drive.google.com/file/d/1vtrGv-aE9ISlxiYIei94BkmcOR10K0Fz/view?usp=sharing>. Shown are actin filaments (green) and microtubules (red) undergoing fast advective flow.

Movie S3: Sample time-series of active actin-microtubule composite exhibiting Class 3 dynamics. The example time-series used to demonstrate Class 3 behavior in Figs 2A, 3 and 4A can be found here: <https://drive.google.com/file/d/17BzLwAOLqWSPriZmDaN5tM7ASR4Wln6T/view?usp=sharing>. Shown are actin filaments (green) and microtubules (red) undergoing multi-mode dynamics with features of both Class 1 and Class 2.

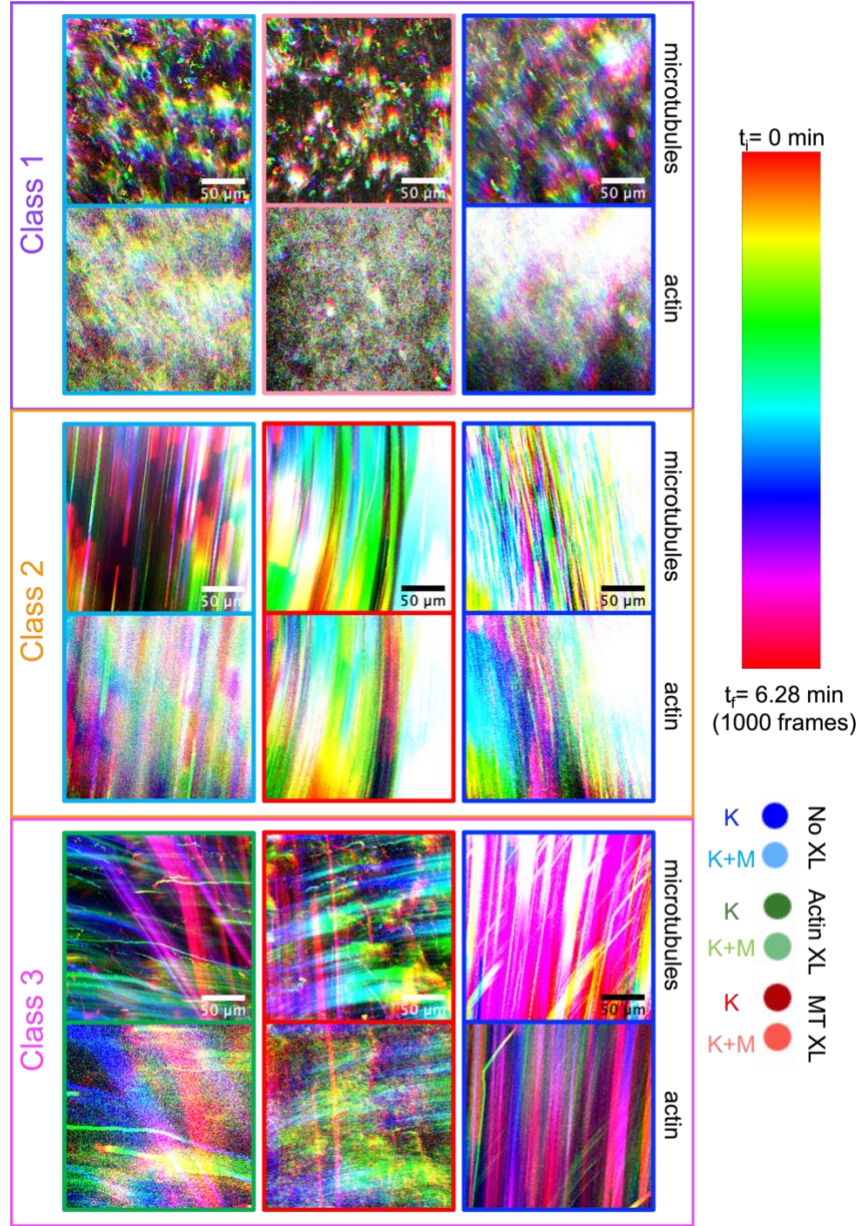


Figure S1: Temporal color maps of time-series showing different Classes of dynamics. Temporal color maps generated from the microtubule (top rows) and actin (bottom rows) channels of nine different 1000-frame (~ 6 min) time-series divided into Class 1 (top), Class 2 (middle), and Class 3 (bottom) as defined in the main text. Temporal color maps show the frame-to-frame position of each pixel relative to its starting point, with the color denoting time according to the scale shown to the right of the images. Class 1 maps show small-scale random motion; Class 2 maps depict fast motion that is largely unidirectional across the entire field of view for the duration of the video; Class 3 maps reveal motion that has features of both Class 1 and 2. The color outlining each map denotes the composite formulation according to the legend. Scale bars shown in MT maps also apply to actin maps.