Electronic Supplementary Material (ESI) for Soft Matter.
This journal is © The Royal Society of Chemistry 2018

Supplmentary Videos

May 1, 2018

1 plain_movie.mp4

A system of 2×10^5 active Brownian particles of radius r_0 undergoing spontaneous separation into dense and dilute phases. The persistence length is $\ell_{\rm p} = 100r_0$; the area fraction is $\phi = 0.5$ and the aspect ratio of the simulation box is $L_x/L_y = 2$, with $L_x = 1600r_0$ and periodic boundary conditions. A snapshot from this video is shown in the upper panel of Fig. 1.

2 edge_movie.mp4

The video demonstrates the two methods fused for identifying the interface. The red curve results from a contour-finding algorithm that captures all overhangs and allows for local curvature measurements, while the green curve considers only the outermost particles at each value of y and can be used to obtain the spectrum of the interface height fluctuations (see Appendix A for details). Here, $\ell_{\rm p} = 100r_0$, $L_x = 800r_0$, and $\phi = 0.5$. A snapshot from this video is shown in the lower left panel Fig. 1.

3 local_frame.mp4

The video demonstrates the use of the local frame of reference to identify particles along the interface (see Appendix B for details) for a single snapshot of a system with ($L_x = 1600$). The local normal is shown in yellow, the local frame background is shown in light green and particles that lie in the local frame are shown in blue. All other particles are represented as black dots and the orange outline is drawn according to the procedure shown in Appendix B. A snapshot from this video is shown in the lower right panel Fig. 1.