Electronic Supplementary Material (ESI) for Soft Matter.

Supplementary information

Videos provided are simulation results of phases at statepoints mentioned below using method described in model and methods section of the paper.

Video #1: Phase A at $\alpha_0 = 0.2$ and $F_{active} = 100$

Video #2: Phase B at $\alpha_0 = 0.35$ and $F_{active} = 300$

Video #3: Phase C at $\alpha_0 = 0.5$ and $F_{active} = 40$

Video #4: Phase E at $\alpha_0 = 0.45$ and $F_{active} = 40$

Video #5: Phase F at $\alpha_0 = 0.65$ and $F_{active} = 100$

Video #6: Phase G at $\alpha_0 = 0.85$ and $F_{active} = 40$

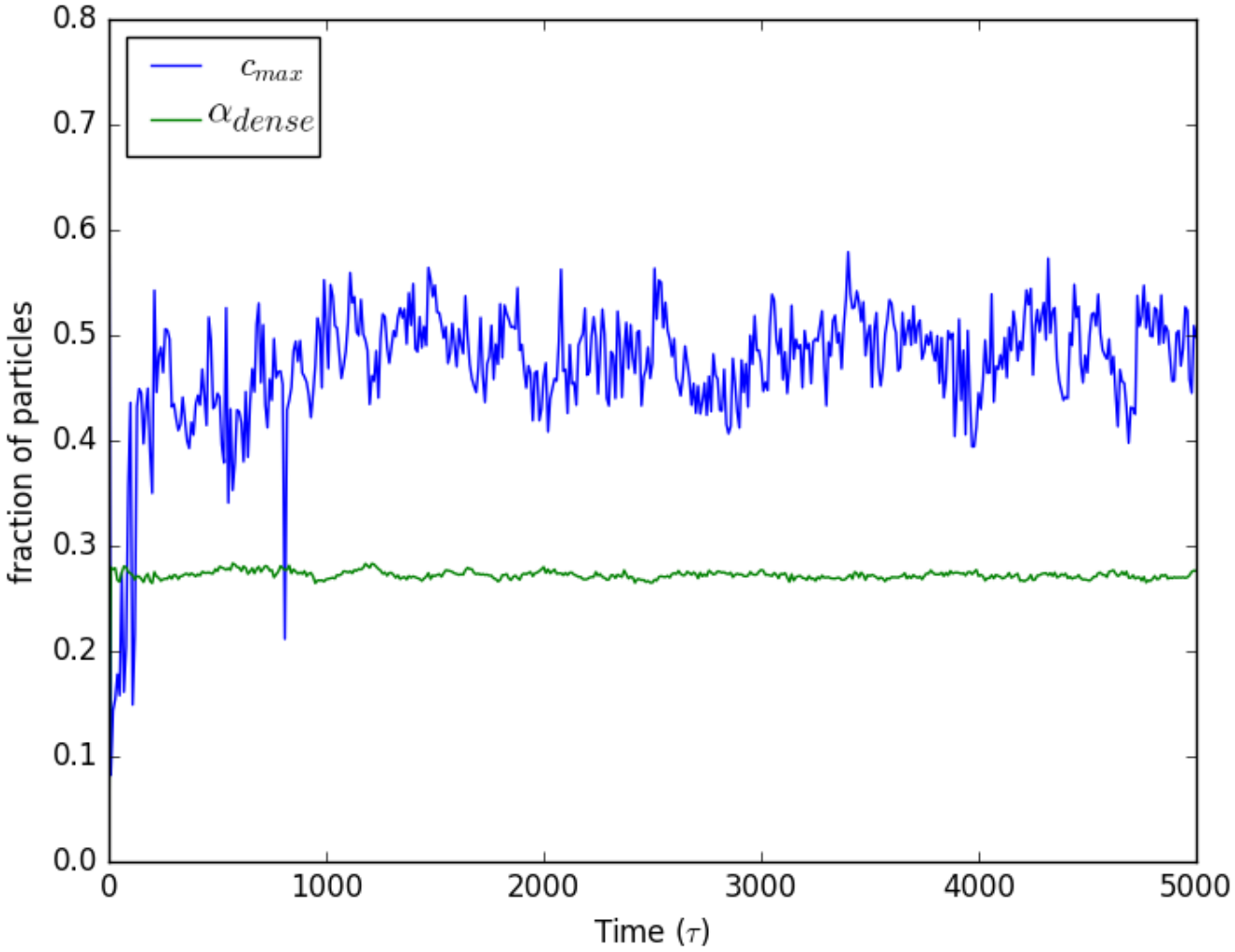

Figure 1: Time evolution of maximum cluster size, c_{max}, and fraction of CAPs, α_{dense}, in the dense phase at $\phi = 0.6$, $F_{active} = 40$, and $\alpha_0 = 0.25$.

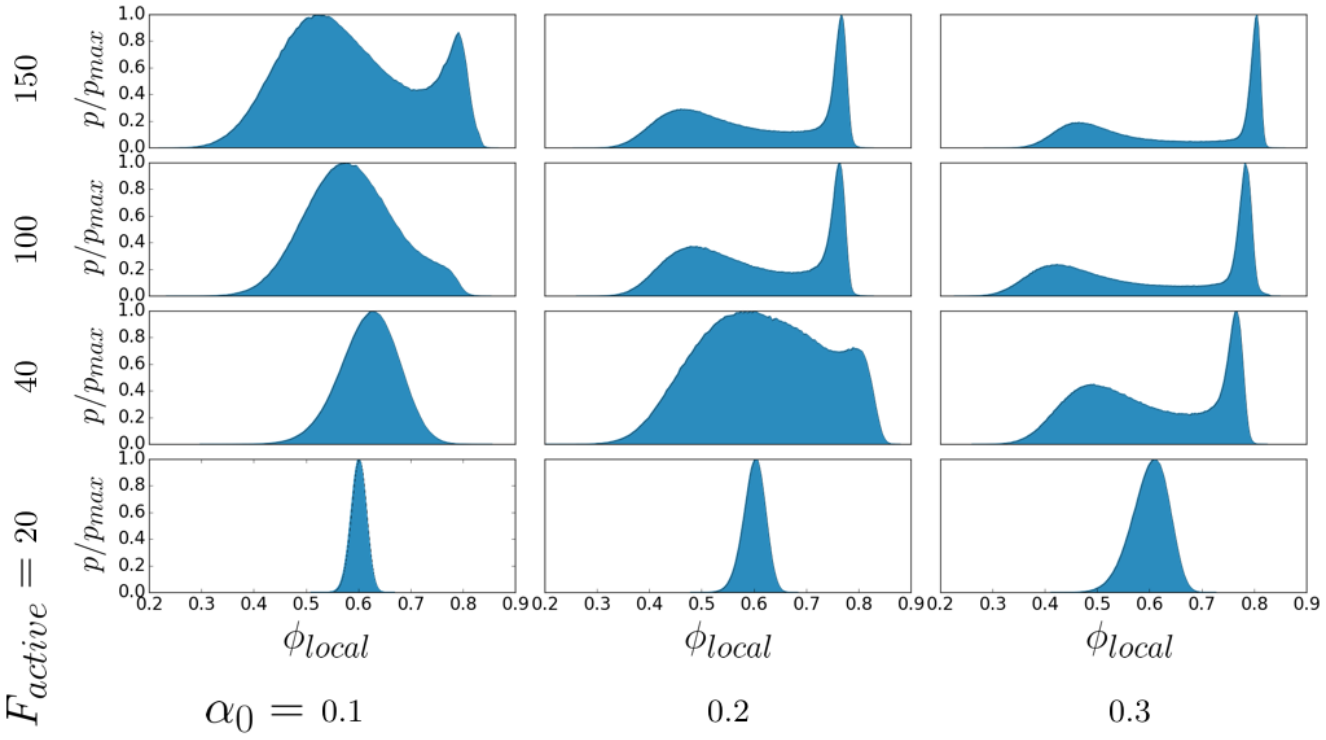

Figure 2: The density distribution of the system at $\phi = 0.6$ for varying α_0 and F_{active}. For subplots, the x-axis varies the packing fraction ϕ and the y-axis plots its probability p. The distribution is calculated at the steady state and averaged over 250 frames.

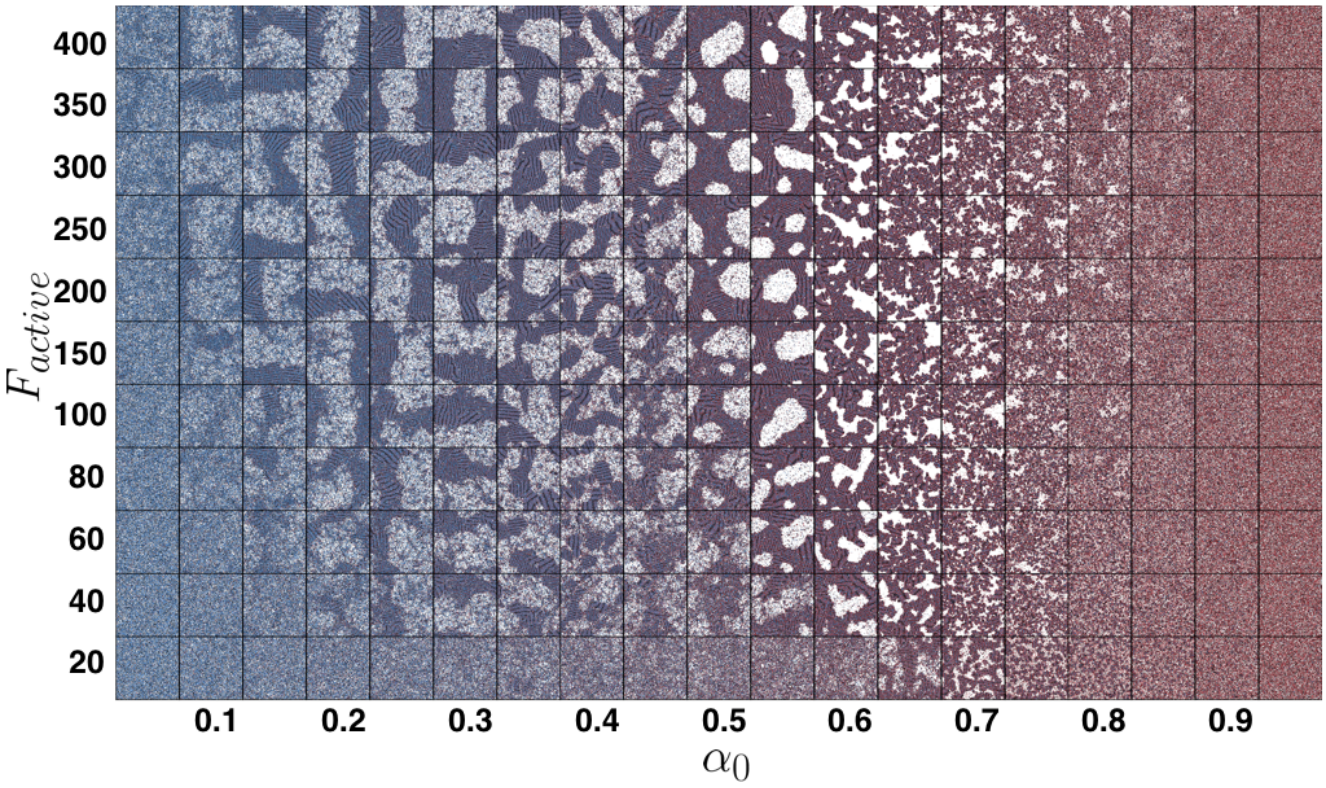

Figure 3: The phase diagram of the system at $\phi = 0.6$. The x-axis varies α_0 and y-axis varies F_{active}. Each grid point is a snapshot of the corresponding statepoint at steady state. The simulation method is described in the model and methods section of the paper.

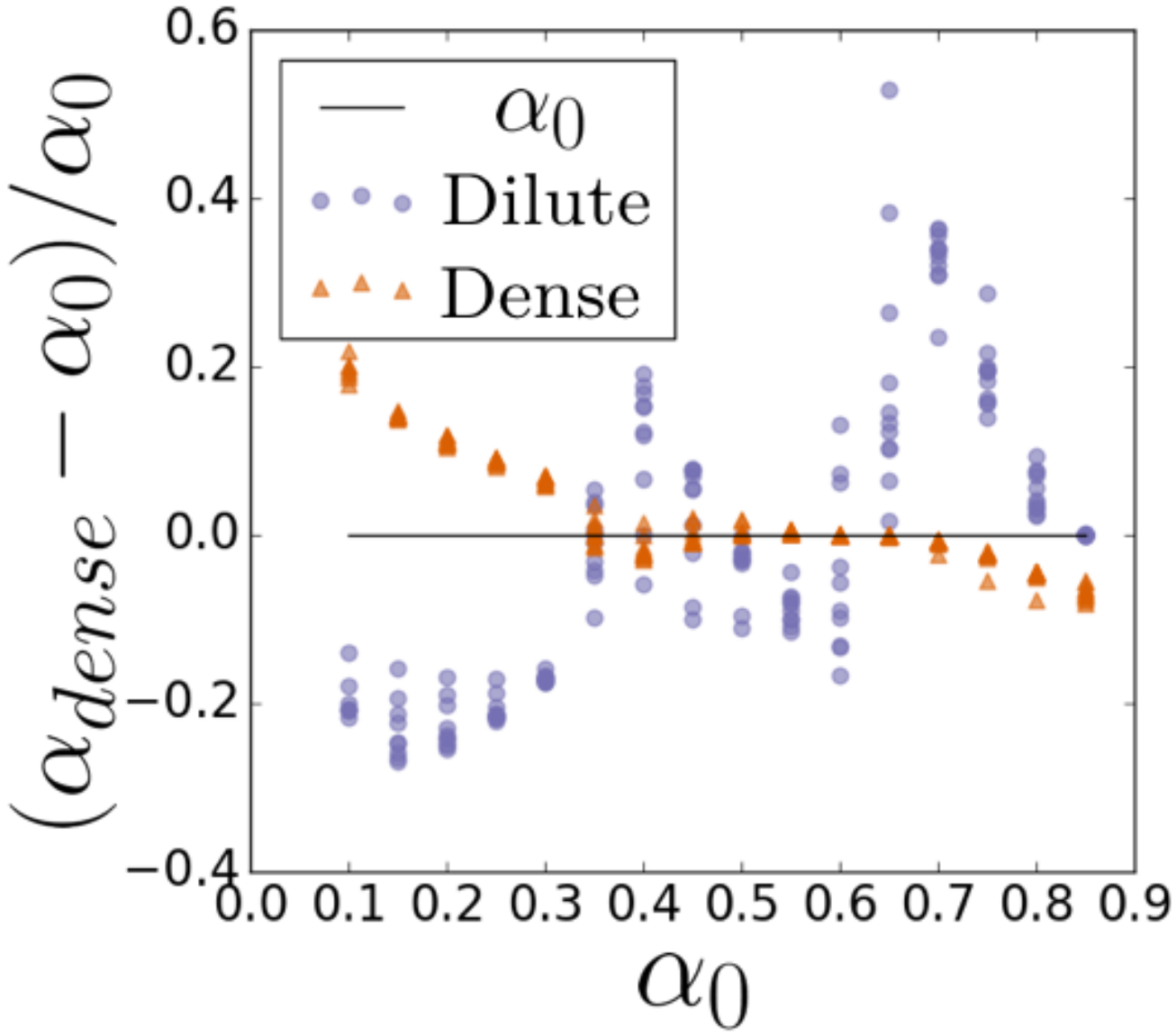

Figure 4: Fraction of CAPs in the dense and dilute phases, α_{dense} and α_{dilute}, relative to α_0 for all the state points (varying F_{active} and α_0) at $\phi = 0.6$ that phase separate and reach steady state.

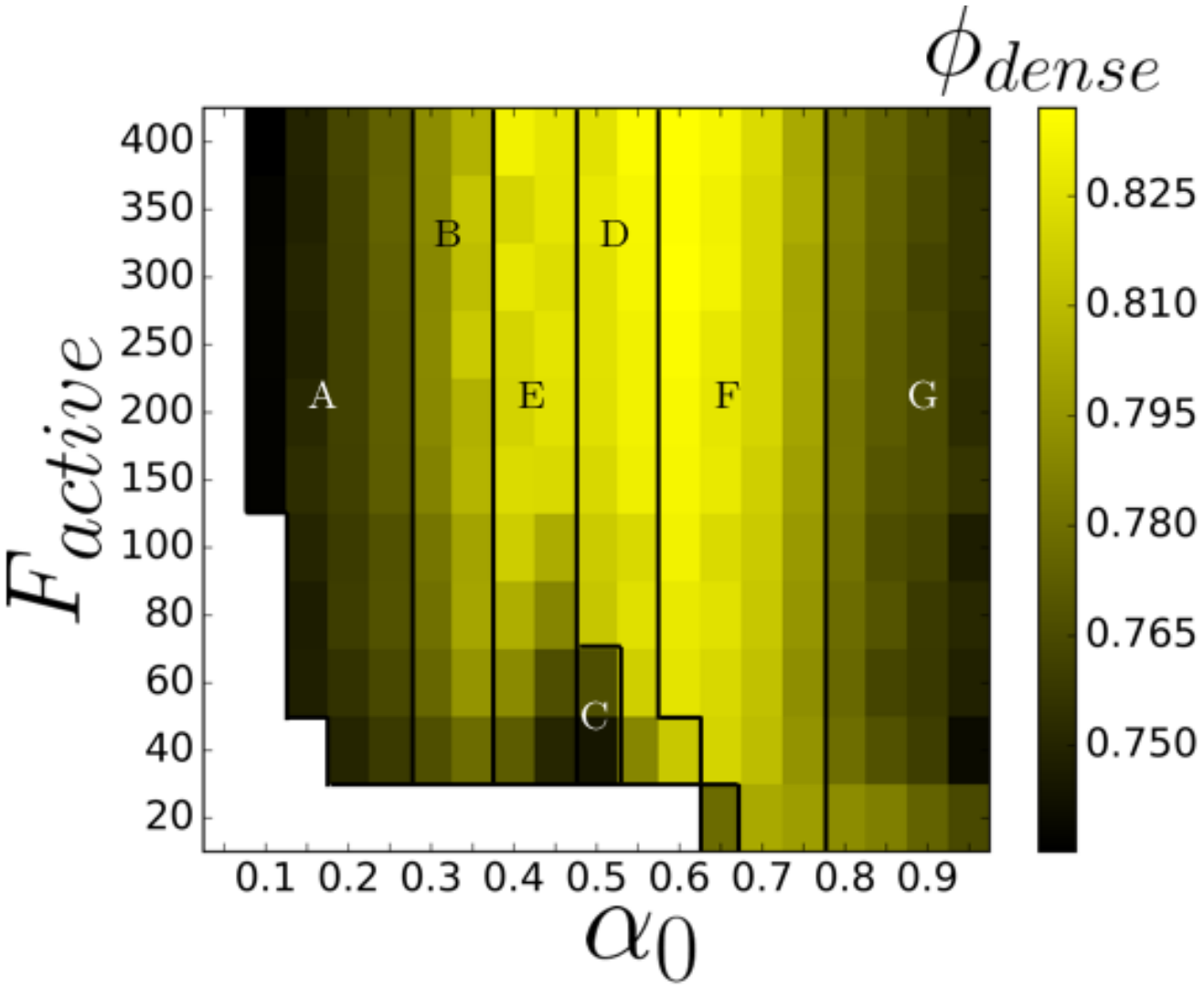

Figure 5: Heatmap of average local density, ϕ_{dense}, of the dense phase at $\phi = 0.6$, averaged over 20 frames.

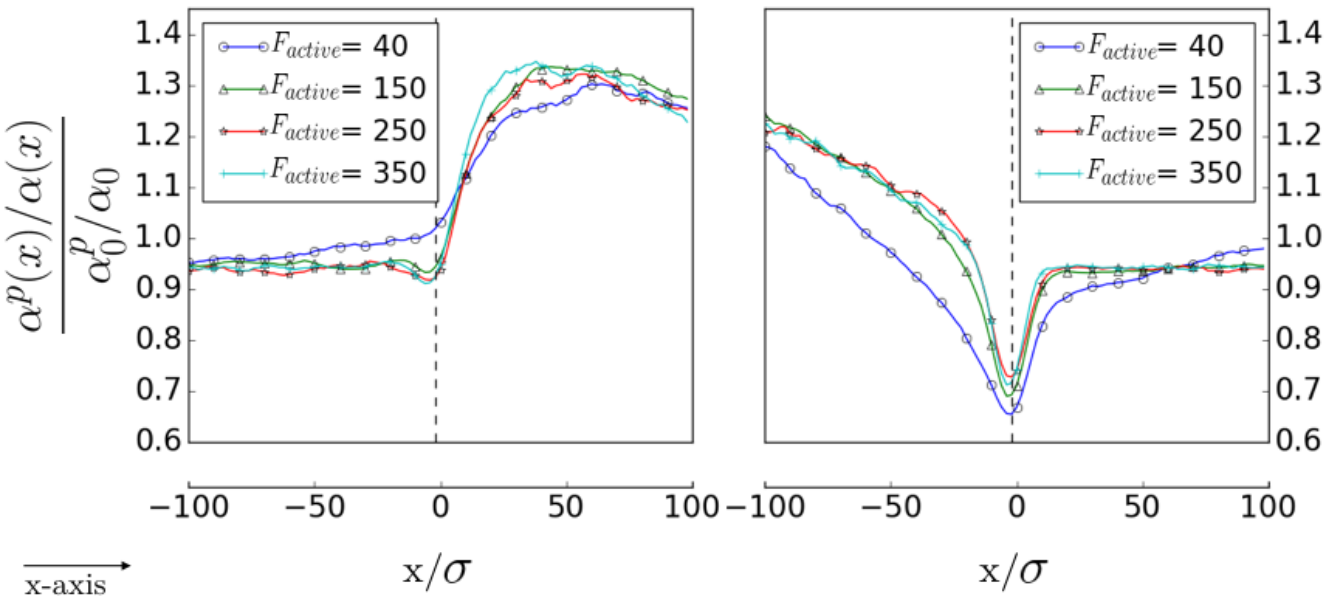

Figure 6: Ratio of passive particles to CAPs as a function of x-axis at $\alpha_0 = 0.2$, averaged over 150 frames.