Supplementary figures
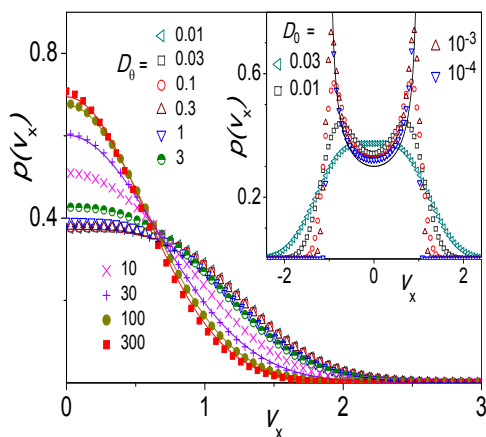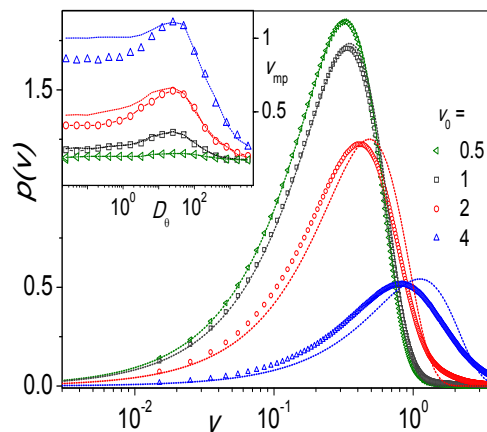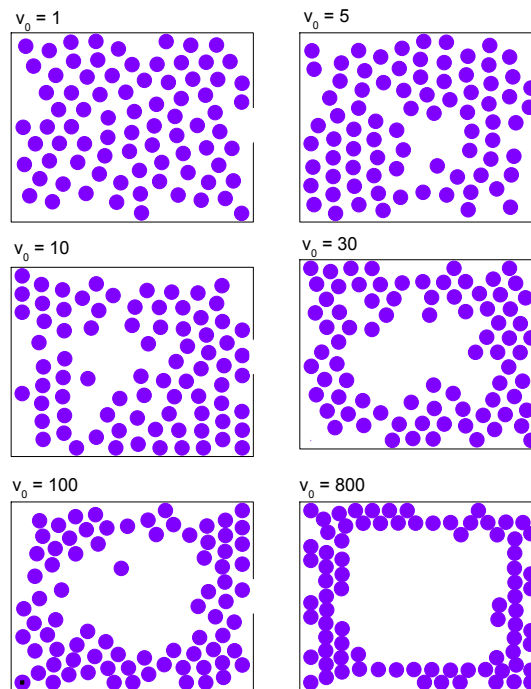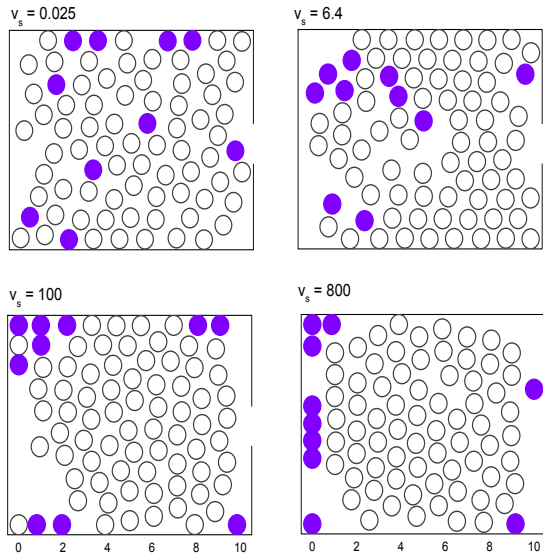

FigSM1: (Color online) Distribution of the x-component, v_x, of the velocity for different D_θ (main panel) and for $D_\theta = 0.3$ and different D_0 (inset). Solid lines represent: in the main panel, the corresponding one-dimensional Maxwell velocity distributions, $p(v_x) = \sqrt{m/2\pi kT_{\text{eff}}}\exp\left(-mv_x^2/2kT_{\text{eff}}\right)$; in the inset, the limit for $D_0 \to 0$, $p(v_x) = 1/\pi\sqrt{1-(v_x/v_0)^2}$. The parameters used are (unless mentioned in the legends): $D_0 = 0.03$, $v_0 = 1$, $\gamma = 10$, $m = 1$.
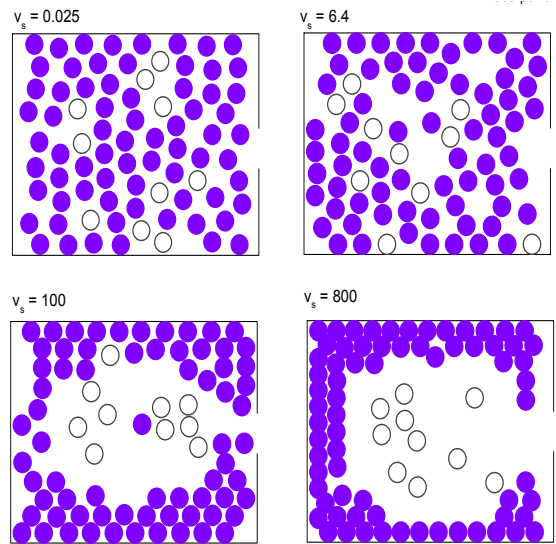

FigSM2:(Color online) Velocity distribution of interacting self-propelled particles for different self-propulsion strength v_0 . In the main figures, solid lines are least-square fitting with 2D Gaussian distribution Eq.(8). The parameters used are (unless mentioned in the legends): $v_0 = 1$, $\tau_\theta = 3.33$, $\tau_\gamma = 0.1$, $r_0 = 0.75$, $D_0 = 0.01$, $\varepsilon = 1$, $\phi = 0.7$. Insets: v_{mp} versus D_θ for different v_0 comparing numerical data with estimates based on $v_{\text{mp}} = \sqrt{B}$ (represented by dotted lines).
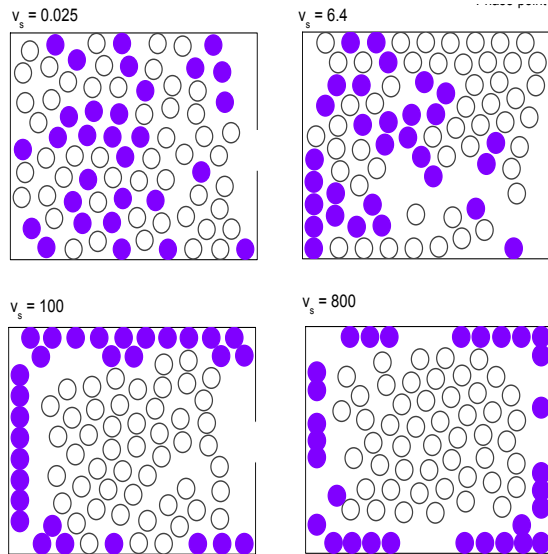

FigSM3: (Color online) Snapshot of phase points of interacting JPs for different self-propelled velocity v_0 and other parameters $\varepsilon = 1$, $x_L = y_L = 10$, $\Delta = 0.5$, $r_0 = 0.5$, $D_0 = 0.03$, $N_t = 80$,

FigSM4: (Color online) Snapshot of phase points of binary mixture with mole fraction of strong active particles $\eta_s = 0.125$ for different v_s. Filled and empty circles represent strong and weak JPs, respectively. Other parameters $\varepsilon = 1$, $x_L = y_L = 10$, $\Delta = 0.5$, $r_0 = 0.5$, $D_0 = 0.03$, $N_t = 80$, $D_\theta = 1$,

FigSM6: (Color online) Snapshot of phase points of binary mixture with mole fraction of strong active particles $\eta = 0.88$ for different v_s. Filled and empty circles represent strong and weak JPs, respectively. Other parameters $\varepsilon = 1$, $x_L = y_L = 10$, $\Delta = 0.5$, $r_0 = 0.5$, $D_0 = 0.03$, $N_t = 80$, $D_\theta = 1$,

FigSM5: (Color online) Snapshot of phase points of binary mixture with mole fraction of strong active particles $\eta = 0.375$ for different v_s. Filled and empty circles represent strong and weak JPs, respectively. Other parameters $\varepsilon = 1$, $x_L = y_L = 10$, $\Delta = 0.5$, $r_0 = 0.5$, $D_0 = 0.03$, $N_t = 80$, $D_\theta = 1$,