Supplementary Material

Order-disorder transitions within deformable particle suspensions in planar Poiseuille flow

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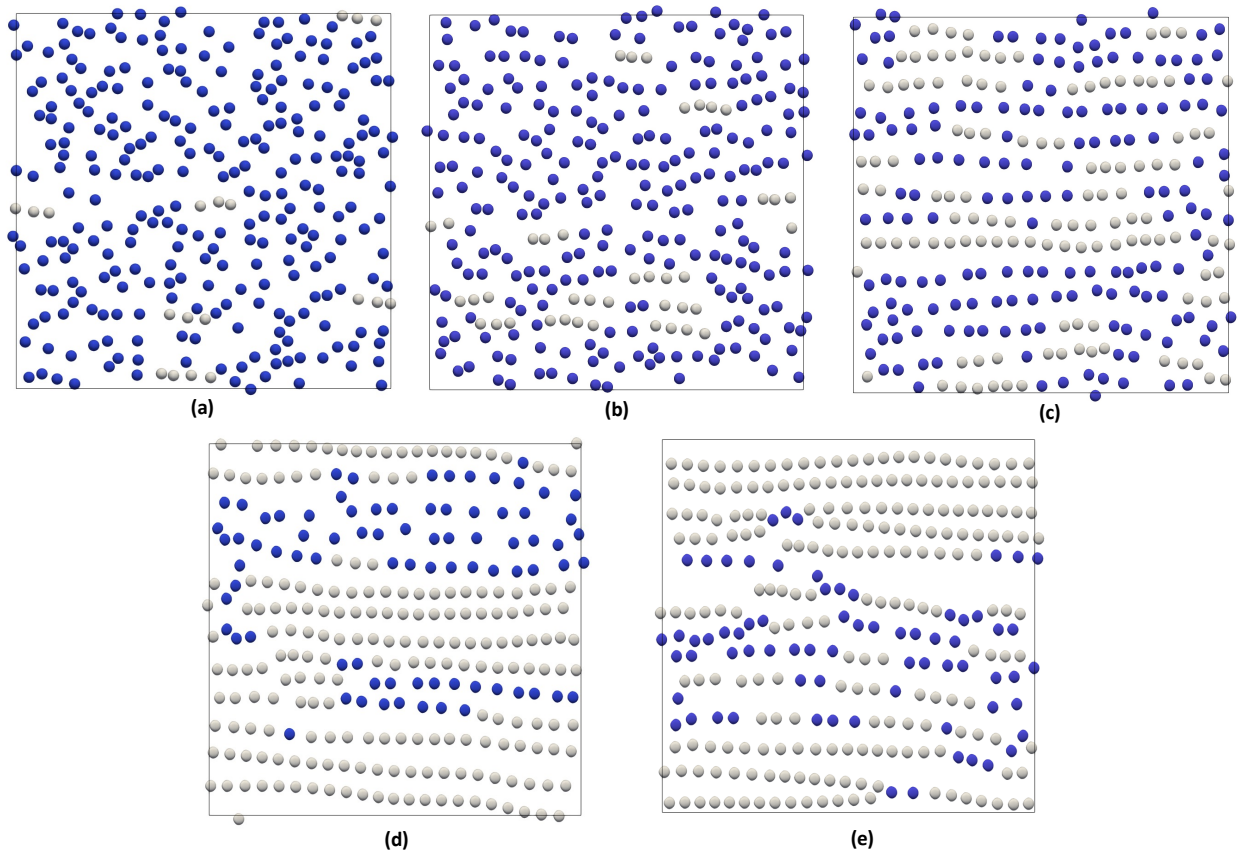

Figure S1: Top-down views of the final capsule configurations for a/h = 0.75 for (a) Ca = 0.01, (b) Ca = 0.05, (c) Ca = 0.1, (d) Ca = 0.2, (e) Ca = 0.3. These simulations correspond to the plot of Φ_t vs $\tilde{t}$ shown in Fig. 4f of the main paper.

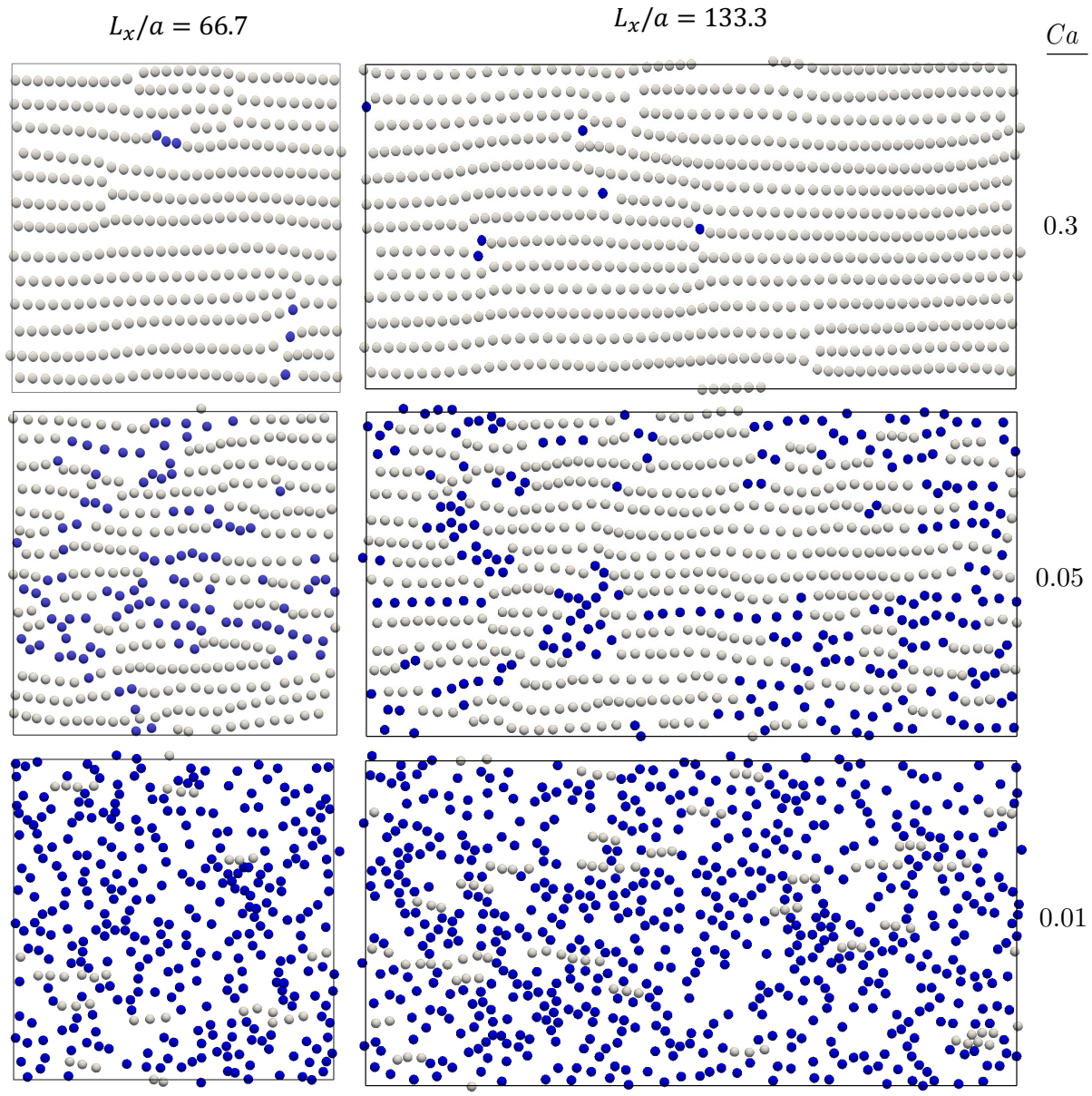

Figure S2: Top-down views of the final capsule configurations for a/h = 0.6 for two channel lengths: (left) L_x/a = 66.7 corresponding to the domain size used for the results in the main text, and (right) L_x/a = 133.3 which is twice is long in the flow direction. The top, middle, and bottom rows correspond to Ca = 0.3, 0.05, and 0.01, as indicated.

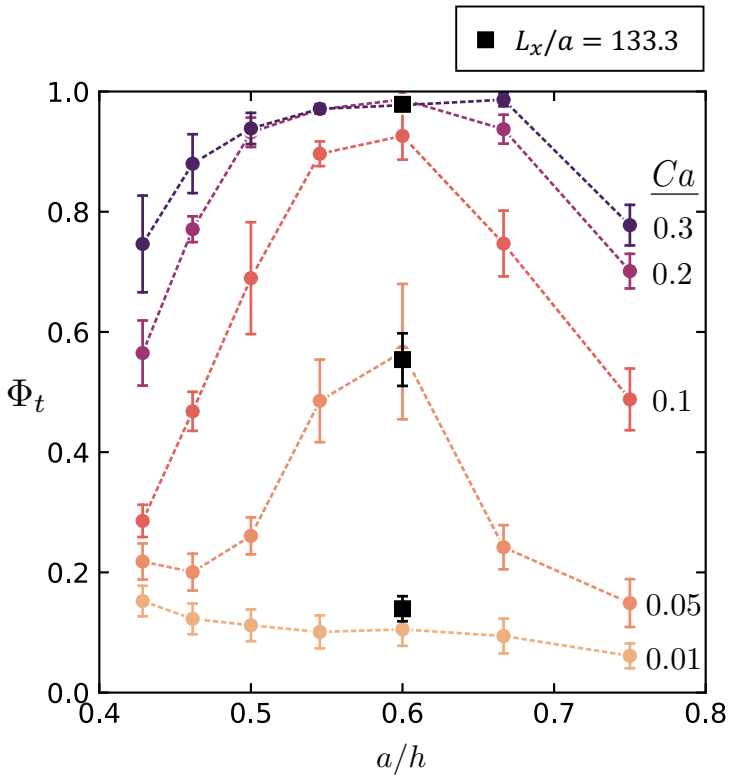

Figure S3: The Φ_t values for the longer channel simulations shown in figure S2 plotted (black squares) onto figure 7a from the main text. This result suggests that periodicity effects in the flow direction are negligible for the domain size chosen for this work.

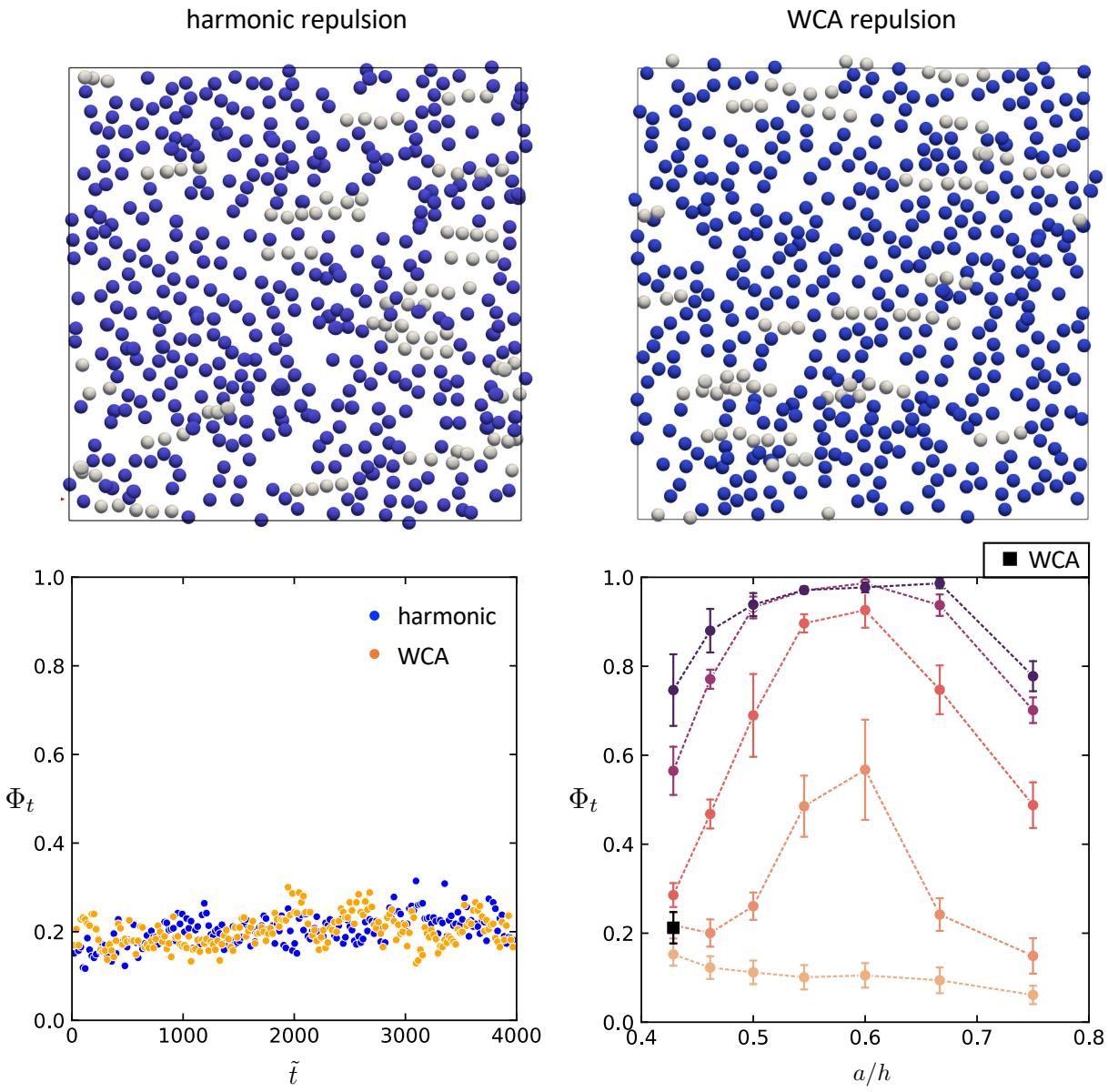

Figure S4: Comparison between the soft harmonic repulsion potential used in this work, and a Weeks-Chandler-Anderson (WCA) potential with ϵ = 0.00021 and σ = 0.89 (chosen such that the cutoff radius is equal to 1 Δx). For this comparison, Ca = 0.05 and a/h = 0.43. The top row shows top-down views of the suspensions at the end of the simulation. The simulations began at different random configurations, so it is not expected that the images in the top row should be identical.