**Supplementary File 2 Parameter values used in Fig. 4 and figure supplements**

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| Fig. 4 | (A) All the parameter values are the same as in Sup. File 1.  (B) *Lx* = 720, *Xc* = 635, *ua* = 0.66, *va* = 1.01, and ω0 = 0.2001. Values of all the other parameters are the same as in Sup. File 1.  (C) *tg* = 270 min, *vp* = 0.16 for *t* < *tg* and *vp* = 3 for *t* ≥ *tg*. Values of all the other parameters are the same as in Sup. File 1.  (E), (F) *Lx* = 720, *Xc* = 635. *ua* = 0.66, *va* = 1.01 and ω0 = 0.2001. *tg* = 240 min, *vp* = 0.16 for *t* < *tg* and *vp* = 3 for *t* ≥ *tg*. *κs* = 0.06/780, and *κ*0 = 0.035. Values of all the other parameters are the same as in Sup. File 1. |
| Fig. 3-fig. sup. 4 | (A)-(C) *vs* = 0.2-1.6. Values of all the other parameters are the same as in Sup. File 1. |
| Fig. 3-fig. sup. 5 | (A)-(C) *Lx* = 300, 400, 500, 600. *Xc* = 215, 315, 415, 515. All the other parameters are the same as in Sup. File 1. |
| Fig. 3-fig. sup. 6 | (B) *vp* = 0.16 for the left panel, *vp* = 3 for right panel. (C) *vp* = 0.16 – 4.42. All the other parameters are the same as in Sup. File 1. |
| Fig. 3-fig. sup. 7 | *r* = 15 - 30. All the other parameters are the same as in Sup. File 1. |
| Fig. 3-fig. sup. 8 | *κs* = 0 and *κ*0 = 0.04 - 0.13. All the other parameters are the same as in Sup. File 1. |
| Fig. 3-fig. sup. 9 | (A)-(D) *κs* = *κ*0 = 0. *Dθ* = 0, 1.3×10–3, 2.6×10–3. All the other parameters are the same as in Sup. File 1. (E) *κs* = 0, *κ*0 = 0.07. *Dθ* = 0, 1.3×10–3, 2.6×10–3. All the other parameters are the same as in Sup. File 1. |
| Fig. 3-fig. sup. 10 | *k* = 0.5, 3.0, 5.5, 8.0, 10.5. All the other parameters are the same as in Sup. File 1. |
| Fig. 3-fig. sup. 11 | *R* = 30 - 80. All the other parameters are the same as in Sup. File 1. |
| Fig. 4-fig. sup. 1 | *Lx* = 720, *Xc* = 635. For *ua* = 0.66, *va* = 1.01 and ω0 = 0.2001 in (A), (B), (C), and (F). For *ua* = 0.1, *va* = 1.57 and ω0 = 0.2082 in (A), (C) and (D).  For *ua* = 0.4, *va* = 1.27 and ω0 = 0.2042 in (A), (C) and (E). All the other parameters are the same as in Sup. File 1. |
| Fig. 4-fig. sup. 2 | In (B)-(G), *vp* = 0.16 for *t* < *tg* and *vp* = 3 for *t* ≥ *tg*. (B), (C) and (E) *tg* = 270 min. (D) *tg* = 180 min. (F) *tg* = 360 min. (G) *tg* = 450 min. All the other parameters are the same as in Sup. File 1. |
| Fig. 4-fig. sup. 3 | Parameter values are same as in Fig. 4E, F. |
| Fig. 4-fig. sup. 4 | (C) *sr* = 0.0064 and (D) *sr* = 0.0192. In both (C) and (D), *r*0 = 30 μm. All the other parameters are the same as in Sup. File 1. |
| Fig. 4-fig. sup. 5 | *κs* = 0.06/780, and *κ*0 = 0.035. All the other parameters are the same as in Sup. File 1. |
| Fig. 4-fig. sup. 6 | Parameter values are the same as in Fig. 4 E, F. |
| Fig. 4-fig. sup. 8 | (B) and (D) Parameter values are the same as in Fig. 4 E, F. |