

Electronic Supplementary Information for Spontaneous organization and phase separation of skyrmions in chiral active matter

Zhong-Yi Li ^a, De-Qing Zhang ^a, Shao-Zhen Lin ^b, Wojciech T. Gózdź ^c, and Bo Li ^a

^a *Institute of Biomechanics and Medical Engineering, Applied Mechanics Laboratory,
Department of Engineering Mechanics, Tsinghua University, Beijing 100084, China*

^b *Aix Marseille Université, CNRS, Centre de Physique Théorique, Turing Center for
Living Systems, 13009 Marseille, France*

^c *Institute of Physical Chemistry, Polish Academy of Sciences, Kasprzaka 44/52,
01-224 Warsaw, Poland*

In this Electronic Supplementary Information (ESI), we provide additional results to supplement the main text.

Additional results

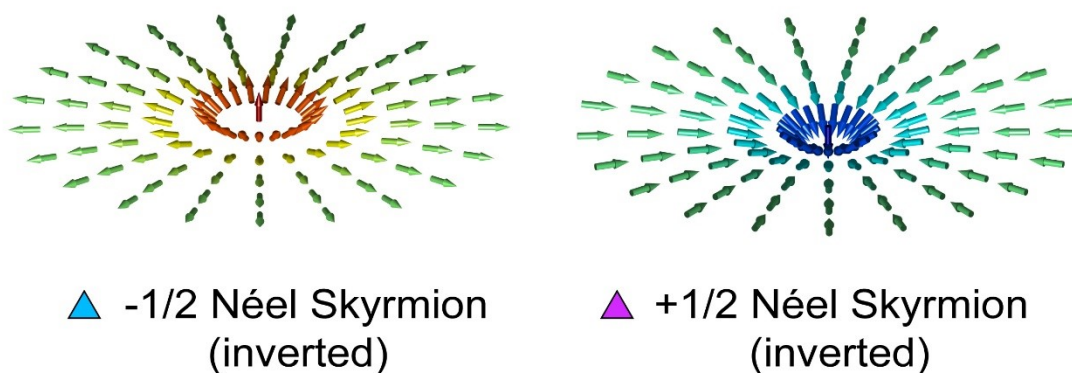


Fig. S1. Two other structures of half Néel skyrmions.

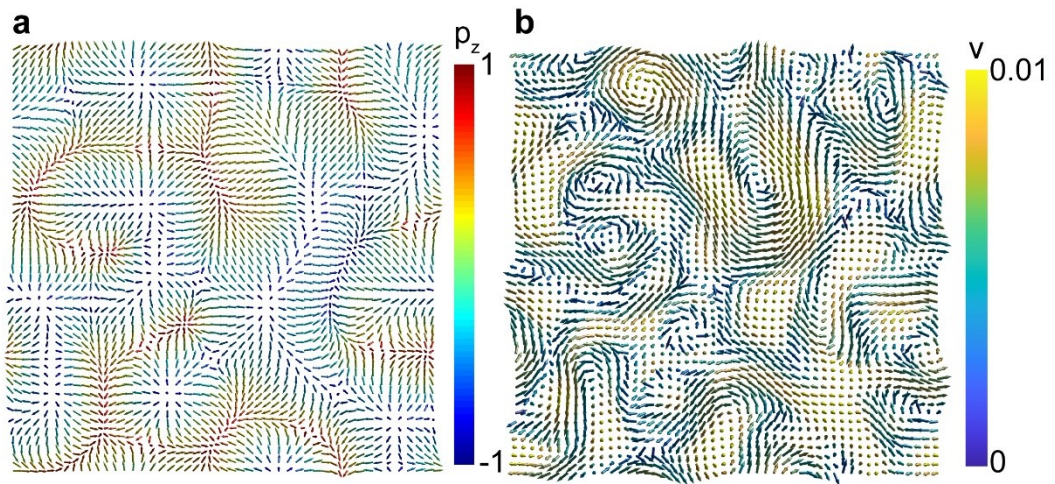


Fig. S2. (a) Polarization direction field \mathbf{p} , which corresponds to isolated skyrmions ($\alpha=0.02$). Arrows represent the direction of polarization. (b) Velocity field \mathbf{v} corresponding to (a).

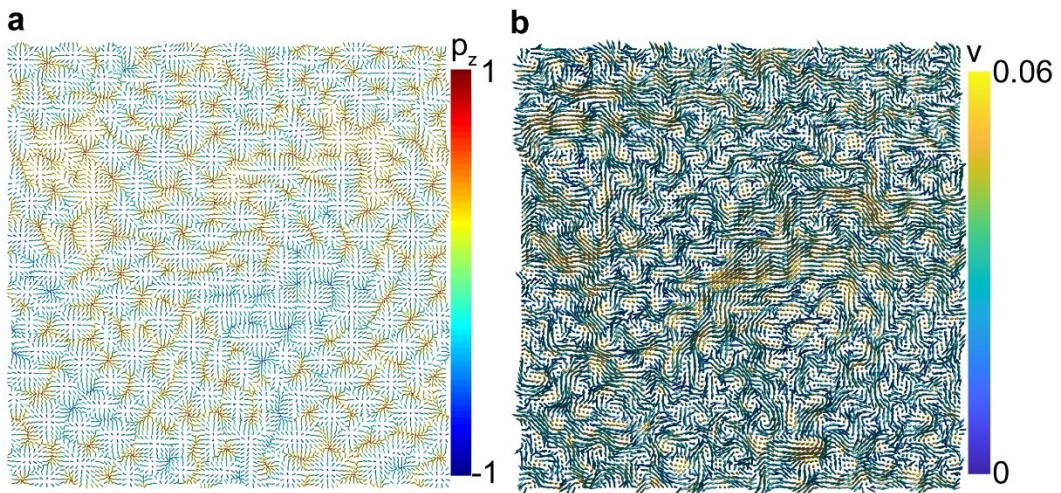


Fig. S3. (a) Polarization direction field \mathbf{p} , which corresponds to crowded skyrmions ($\alpha=0.26$). Arrows represent the direction of polarization. (b) Velocity field \mathbf{v} corresponding to (a).

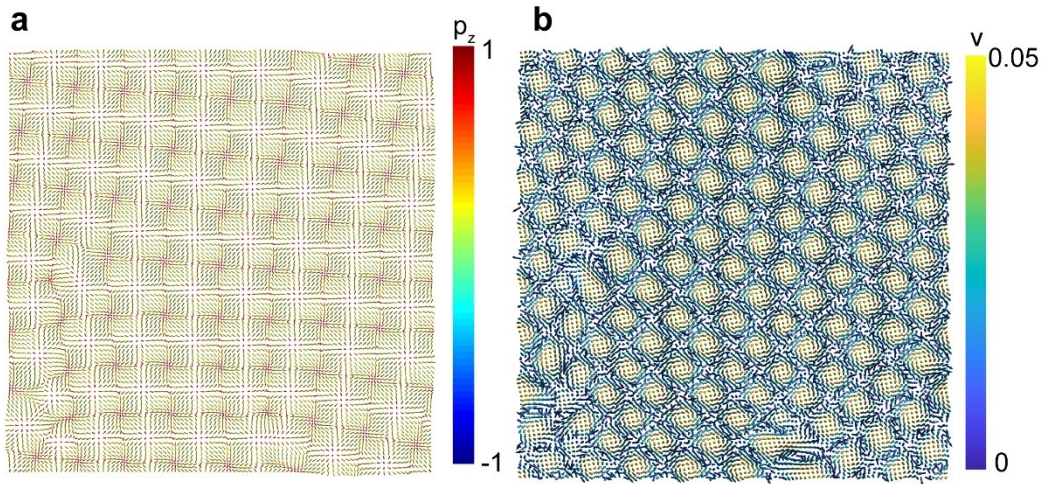


Fig. S4. (a) Polarization direction field \mathbf{p} with the initial conditions for \mathbf{p} along the z direction ($\alpha=0.14$). Arrows represent the direction of polarization. (b) Velocity field \mathbf{v} corresponding to (a).

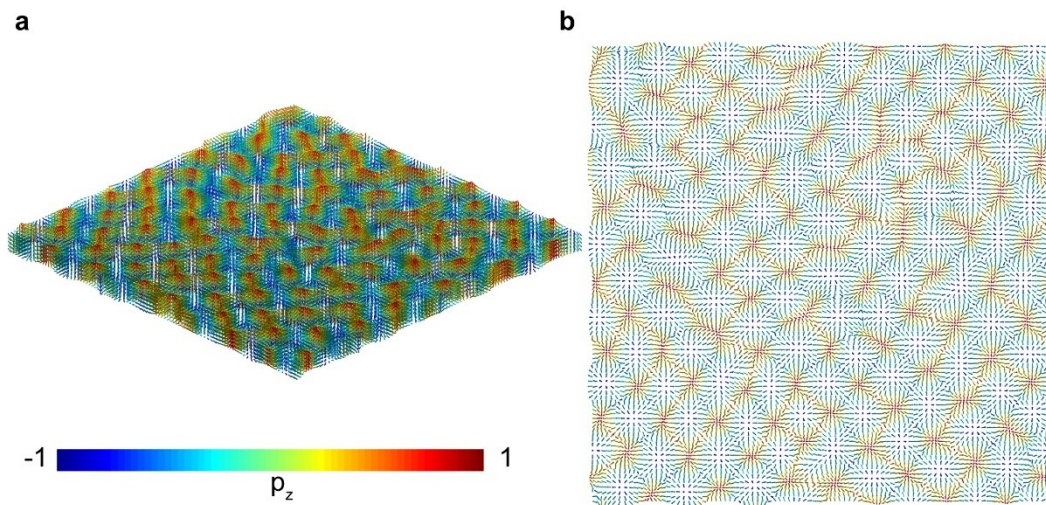


Fig. S5. (a) Polarization direction field \mathbf{p} with $100 \times 100 \times 5$ grid ($\alpha=0.14$). Arrows represent the direction of polarization. (b) Vertical view corresponding to (a).