

## **Description of Additional Supplementary Files**

File Name: Supplementary Movie 1

Description: Supplementary Movie 1 demonstrates a typical micromagnetic dynamical process during one scan, out of the total 300 scans, of the applied magnetic field. Positive and negative topological charges nucleate after helical domains are formed. Due to the stochastic field given by thermal fluctuation, the possibility to create topological charges has a real-space distribution. The average of topological density among the 300 scans are shown by the colour plot in Figs. 3e and f in the main text.