

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: Current-induced dynamics of domains at $j \sim 1.37 \times 10^{11} \text{ A/m}^2$, zero magnetic field and 290 K. The lamella was tilted by 0° .

File Name: Supplementary Movie 2

Description: Current-induced dynamics of domains at $j \sim 1.42 \times 10^{11} \text{ A/m}^2$, zero magnetic field and 290 K. The lamella was tilted by 0° . The movie is presented at twice real-time speed.

File Name: Supplementary Movie 3

Description: Current-induced dynamics of domains at $j \sim 2.18 \times 10^{11} \text{ A/m}^2$, zero magnetic field and 290 K. The lamella was tilted by 15° . The movie is presented at twice real-time speed.