Supplementary Information for "Spin-Cherenkov effect in a magnetic nanostrip with interfacial Dzyaloshinskii-Moriya interaction"

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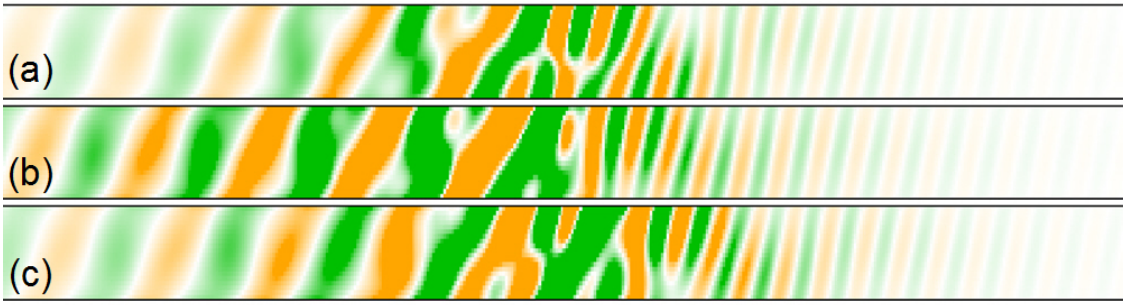
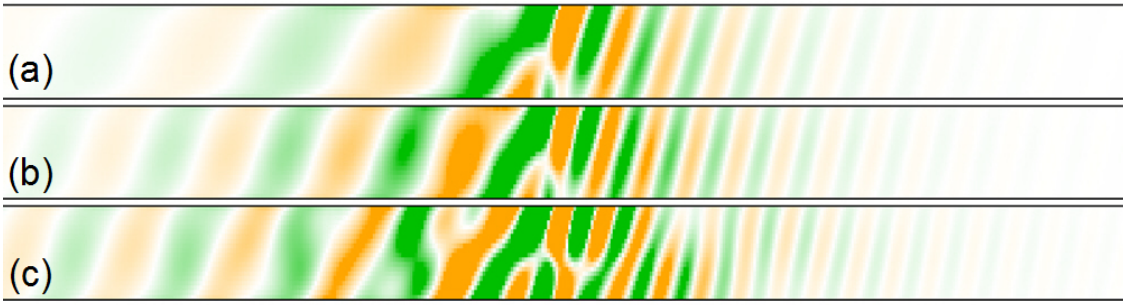
Supplementary Figures



Supplementary Figure 1. Snapshots of the z-component of the magnetization in magnetic strips in the vicinity of the field pulse traveling at a constant speed with different moving field profiles. The external rectangular shape field pulse (**H**) is applied to the 12-μm-long, 100-nm-wide, and 10-nm-thick magnetic strip with a magnitude of 10 mT in the z-direction and constant speed of v_h. Here, $D = 1$ mJ m^{-2} and $v_h = 1100$ m s^{-1}. (**a**) The width in the x-direction and length in the y-direction of the moving magnetic field equal 12 nm and 100 nm, respectively. (**b**) The width in the x-direction and length in the y-direction of the moving magnetic field equal 50 nm and 100 nm, respectively. (**c**) The width in the x-direction and length in the y-direction of the moving magnetic field equal 100 nm and 100 nm, respectively. The color scale representing the out-of-plane component of the magnetization m_z is shown in the Figure 1 of the main text.



Supplementary Figure 2. Snapshots of the z-component of the magnetization in magnetic strips with different thicknesses in the vicinity of the field pulse traveling at a constant speed. The external rectangular shape field pulse (**H**), 12 nm wide in the x-direction and 100 nm long in the y-direction, is applied to the 12-μm-long, and 100-nm-wide magnetic strip with a magnitude of 10 mT in the z-direction and constant speed of v_h. Here, $D = 1$ mJ m^{-2} and $v_h = 1100$ m s^{-1}. (**a**) The thickness of the magnetic strip equals 1 nm. (**b**) The thickness of the magnetic strip equals 5 nm. (**c**) The thickness of the magnetic strip equals 10 nm. The color scale representing the out-of-plane component of the magnetization m_z is shown in the Figure 1 of the main text.