

Abstract Submitted
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Magnon-induced motion of magnetic domain wall in a nanowire with non-uniaxial anisotropy JAE-HO HAN, HYUN-WOO LEE, POSTECH — Magnons propagating along a nanowire may interact with a magnetic domain wall (DM) and shift the DW position. Often, the DW shift direction is opposite to the magnon propagation direction, which can be explained by the angular momentum conservation when the wire has only uniaxial anisotropy. We studied a nanowire with non-zero perpendicular anisotropy constant, in which the angular momentum conservation argument is broken. Additional to the term comes from the angular momentum conservation, we found new term in the DW shift which comes from the rotation of the DW plane during the magnon pass through the DW. The rotation direction gives DW shift in the opposite direction to the magnon propagation direction, and same for two types of transvers DW: head-to-head or tail-to-tail. The magnitude of this term can be comparable to that comes from the angular momentum conservation when the large perpendicular anisotropy and the small magnon wavelength compare to the DW width.

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