

Magnetoresistance study of patterned permalloy nanostructures

Chen D.C., Mei J.K., Wang Y., Yao Y.D., Wu J.K., Huu C.X., Chau N.

Department of Material Science and Engineering, National Chiao Tung University, Hsinchu 300, Taiwan; Ming Hsin University of Science and Technology, Hsin Feng, Hsin-chu 304, Taiwan; Department of Materials Engineering, Tatung University, Taipei, 104, Taiwan; Faculty of Physics, Hanoi University of Science, Vietnam National University, Hanoi, Viet Nam

Abstract: We demonstrated the domain wall motion along the direction of the perimeter of a permalloy ring in the onion state. From the magnetoresistance (MR) measurement with a rotating ring at different constant fields, the critical field to form the onion state is near 200 Gauss and the lowest field that can still drag the domain wall is between 20 and 10 Gauss. The results also revealed a tendency for angle shifting and indicated that the lowest field component in the perimeter direction (the tangential component) was near 10 Gauss at an applied field of 20 Gauss.

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Correspondence Address: Chen, D. C.; Department of Material Science and Engineering, National Chiao Tung University, Hsinchu 300, Taiwan

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Authors with affiliations:

- Chen, D.C., Department of Material Science and Engineering, National Chiao Tung University, Hsinchu 300, Taiwan
- Mei, J.K., Ming Hsin University of Science and Technology, Hsin Feng, Hsin-chu 304, Taiwan
- Wang, Y., Ming Hsin University of Science and Technology, Hsin Feng, Hsin-chu 304, Taiwan
- Yao, Y.D., Department of Materials Engineering, Tatung University, Taipei, 104, Taiwan
- Wu, J.K., Department of Materials Engineering, Tatung University, Taipei, 104, Taiwan
- Huu, C.X., Faculty of Physics, Hanoi University of Science, Vietnam National University, Hanoi, Viet Nam
- Chau, N., Faculty of Physics, Hanoi University of Science, Vietnam National University, Hanoi, Viet Nam

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