Abstracts

Propagation Characteristics of the Magnetostatic Surface Wave in the YBCO-YIG Film-Layered Structure

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Propagation characteristics of the magnetostatic surface wave (MSSW) in a YBa/sub 2/CU/sub 3/O/sub 7-x/ (YBCO)-yttrium iron garnet (YIG) multilayered structure are investigated. Effects of the superconductor on the MSSW are discussed with regard to the dispersion characteristics of both the phase and attenuation constants as a function of the air gap between YIG and YBCO, taking into consideration the magnetic line-width of the YIG film. It was found that the nonreciprocity of MSSW is enhanced significantly by the superconductivity and depends on the magnetic line-width of the YIG film. To examine the effect of a YBCO on the MSSW propagation, experiments are carried out using a commercially available YIG film. Magnetic losses at low temperature are briefly discussed with experimentally observed nonreciprocity.

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