Abstracts

Magnetostatic-wave envelope soliton in microstrip line using YIG-film substrate

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In this paper, a dispersion relation of the microstrip line on a yttrium-iron-garnet (YIG)-film substrate has been derived under the approximation of a two-dimensional analysis. The dispersion curve shows the mixed state of quasi-TEM mode and magnetostatic forward volume wave (MSFVW) mode, and these two modes are coupled with each other at gyromagnetic frequency where MSFVW solitons are excited efficiently. Based on the numerical parameters of the calculated dispersion curve, simulation of the soliton form has been carried out by numerically solving the nonlinear Schrodinger equation. The results are compared with the experimental results of MSFVW envelope bright soliton in a microstrip line on YIG-film-gadolinium-gallium-garnet substrate.

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