

The studies on phonons and magnons in $[\text{CoFeB}/\text{Au}]_N$ multilayers of different number of repetitions

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In $[\text{CoFeB}/\text{Au}]_N$ deposited on the silicon substrate, the interaction between spin waves and surface acoustic waves is observed by Brillouin light scattering spectroscopy. We show that the magnetoelastic interaction in the dispersion relation can be achieved by changing the number of repetitions. As a result, the magnetoelastic interaction between SW mode and SAWs can be controlled (activated or deactivated) by the thickness of the magnetostrictive multilayer. It is also possible to control the character of magnetoelastic interaction by selection of the type of magnetic waves that take part in the magnetoelastic interaction.

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