

**FEATURES OF SH-WAVES PROPAGATION AND
LOCALIZATION NEARBY THE 1D MAGNON CRYSTAL
SURFACE**

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By using transfer matrix method the influence of magnetoelastic interaction on the normal SH modes spectrum of the semi-infinite 1D magnon crystal with mechanically free surface has been analyzed. In particular, the two-component magnetic superlattice with the ferro- or antiferromagnetic ordered adjacent layers similar to "easy axis ferromagnetic – nonmagnetic dielectric" and the magnetic phonon crystal similar to "easy axis antiferromagnetic - ideal superconductor" were studied. For the represented data we assumed that elastic properties of magnetic and nonmagnetic components of the magnetic phonon crystal are identical. Especially:

- i) existence conditions and dispersion relation for the three case of the surface acoustic SH-waves formation nearby a magnetic superlattice outer surface have been determined;
- ii) the criteria of a nonreflection transmission of shear bulk elastic wave through the semi-infinite 1D acoustically rigid superlattice has been formulated;
- iii) the collective shear surface acoustic wave and the condition can have a nonreciprocity relative to a direction of the SH-wave propagation along the superlattice surface.

←————— 13.4 cm —————→

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9.7 cm