

SUMMARY

REPORT TO THE SCIENTIFIC AND PEDAGOGICAL PRACTICE

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On the theme: *"Spin Wave Management as a Basis for Spintronics Devices"*

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Actuality: Spintronics is now developing rapidly - an electronics industry that uses quantum properties of electron spin characterized by two quantum states. The orientation of the spins remains unchanged if the source of the polarized current is turned off, so the spintronic devices are very commonly used in information storage devices, alternating voltage generators, transistors, and the like.

Problem statement: Explore literary sources. Consider spin lens, which consists of magnetic materials with different magnetic parameters. Explore the spectral characteristics of the focal length and reflectance of the lens.

Ways of solving the problem: By combining the geometric optics approach, the equation of motion of the magnetic moment and the quantum-mechanical methods, the dependence of the focal length of the refractive index and the reflectance of the lens on the spin wavelength and the magnitude of the external magnetic field is determined.

Results and conclusion: Expressions for the focal length of the refractive index and reflectivity of the lens from the spin-wave frequency and the magnitude of the external magnetic field are obtained. It is shown that these parameters can be controlled by changing the lens parameters, wave frequency and magnetic field.