# Magnetostriction and magnetization oscillations of superconducting 2H-NbSe2 single crystals

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9.7 cm

We present magnetostriction and magnetization measurements on 2H- NbSe2 single crystals in magnetic field up to 20 T and at temperature between 1.5 K and 8K. Using the amplitudes of the oscillatory magnetostriction component and of the oscillatory magnetization component we get the important parameter $\partial lnS_m/\partial\sigma_\alpha$, where $S_m$ is the extremal cross-sectional area of the Fermi surface, $\sigma_\alpha$ is the mechanical stress, and, therefore, that gave us detailed information on the response of the Fermi surface to mechanical stress. The expression for $\partial lnS_m/\partial\sigma_\alpha$ was obtained from a thermodynamic analysis of the oscillating part of the thermodynamic potential. The values obtained are much higher than the values of $\partial lnS_m/\partial\sigma_\alpha$ for common metals. This is due to the peculiar geometry of Fermi surface in this anisotropic compound. The periods of magnetostriction and magnetization oscillations coincide, which means that both effects are attributed to Landau quantum oscillations. The periods, frequencies and amplitudes of the oscillations can be used to extract all the information about electronic structure (e.g. effective masses, shape and size of the Fermi surface) of this compound.

13.4 cm

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