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Short Notes

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Commutation Effect in the Magneto-Thermopower of  $\text{Bi}_{0.88}\text{Sb}_{0.12}$  Alloy

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In anisotropic materials under certain conditions a commutation effect (a dependence of thermomagnetic kinetic coefficients on the change of the magnetic field direction) may occur. For the first time the commutation effect (CE) was observed in bismuth in /1/, and then studied in detail in /2 to 6/. The main points of /1 to 6/ are: 1) CE depends on the peculiarities of the band structure; 2) the sign and value of CE is affected by those of the axis slope angle of isoenergetic ellipsoids with respect to the crystal basis surface; 3) CE can be experimentally observed only if there are two groups of carriers with entirely different isoenergetic surfaces. According to the last conclusion it was supposed that CE in antimony-bismuth alloy (on the Bi side) exists only in the compositions with overlapping L and T extrema /2/. In the present note the commutation effect in the magneto-thermopower of  $\text{Bi}_{0.88}\text{Sb}_{0.12}$  semiconductor alloy is described for the first time.

The thermopower and magneto-thermopower of two samples of  $\text{Bi}_{0.88}\text{Sb}_{0.12}$  alloy with sizes  $3 \times 3 \times 325 \text{ mm}^3$  were measured in the temperature range of 2 to 300 K and transverse magnetic fields up to 18 kOe. The long axes of the samples were oriented along the bisector (sample N1) and trigonal (sample N2) axes.