



## Structural instability of an impurity subsystem induced by monocrystal deformation

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### Abstract

Oscillating resistivity dependence of tensile extension was observed in thin ( $d < 20 \mu\text{m}$ ) cylindrical single crystals of Bi-0.03 at% Sn alloy at 4.2 K. The resistivity dependence was influenced by sample diameter, temperature and impurity concentration. A new frequency of the Shubnikov-de Haas oscillations appeared at relative elongation of 0.8B-1% in weak magnetic fields, which was 3-5 times less than the basic  $L_{2,3}$ -electron frequency. Consideration of the non-monotonical dependence of the thin sample resistivity was based on the representation of the size effect-quantized carrier spectrum and the visible variation of excessive carrier concentration induced by impurities under tensile extension. We connect the new frequency appearance with the structure transition in the impurity subsystem induced by single crystal deformation.

*Keywords: cylindrical single crystals, single crystals, Shubnikov-de Haas oscillations*