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Kinetics of radiation damages in SAV-1 alloy under neutron irradiation

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The electric conductivity of the aluminium alloy SAV-1 irradiated with fast neutrons was investigated in the fluences range $10^{16} - 10^{19} \text{ n cm}^{-2}$ and a temperature range 290-480 K. It is revealed on the basis of the X-ray structure analysis that the average static displacement of atoms in the alloy in order of magnitude comparable to their dynamic thermal displacements. It is shown that the observed nonlinear dependence of the resistivity of the alloy on the dose and temperature due to changes in the degree of long-range order of the crystal lattice by neutron irradiation. The mechanisms of radiation modification of the structure of the alloy SAV-1 are discussed.

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