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Production of Nb3Sn superconductors produced by the “internal tin” method.

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In this study we consider the results of development and production low temperature superconductors on base of Nb3Sn by the “internal tin” method with critical current density more than 2450 A/mm2. The obtained superconductors of 1.0 to 0.7 mm in diameter of different layouts have been subjected to reaction by various regimes for the formation of the superconducting compound, and then their critical characteristics were investigated. The influence of different regimes and design features of heat treatment on obtained level of critical current density, residual resistance ratio and microstructure of annealed strands was studied. It has been installed the relationship between temperature and duration of reaction and the sizes and shapes of the superconducting Nb3Sn grains in the manufactured superconductors.

Primary author: ABDYUKHANOV, Ildar (VNIINM (Bochvar Institute))

Co-authors: ALEKSEEV, Maxim (Bochvar Institute of Inorganic Materials); ALIEV, Ruslan (Bochvar Institute of Inorganic Materials); KRYLOVA, Maria (Bochvar Institute of Inorganic Materials); LUKYANOV, Pavel (Bochvar Institute of Inorganic Materials); MAREEV, Konstantin (Bochvar Institute of Inorganic Materials); NOVOSILOVA, Daria (Bochvar Institute of Inorganic Materials); PANTSYRNY, Victor (Bochvqr Institute); POLIKARPOVA, Maria (Bochvar Institute of Inorganic Materials); POTAPENKO, Mickael (Bochvar Institute of Inorganic Materials); SILAEV, Alexander (Bochvar Institute of Inorganic Materials); TSAPLEVA, Anastasia (Bochvar Institute of Inorganic Materials); ZUBOK, Evgeniy (Bochvar Institute of Inorganic Materials); ZERNOV, Sergey (TVEL)

Presenter: ABDYUKHANOV, Ildar (VNIINM (Bochvar Institute))

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