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Activities on medium grain niobium at DESY

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Within the ITN (ILC Technology Network) activity led by KEK, the so-called “Medium Grain Niobium” is investigated with respect to its possible application for a large-scale SRF cavity production for the International Linear Collider ILC [1-3]. In the framework of the KEK-DESY collaboration, the niobium material for two 1.3 GHz single-cell cavities was supplied by KEK. After fabrication and initial surface treatment by electropolishing in industry, the cavities have been tested successfully at DESY with gradients above 40 MV/m. Subsequently, a heat treatment at medium temperatures around 350 ℃ (Mid-T heat treatment) in the DESY furnace was applied. The vertical test results of these treatments will be reported. In addition, the effect of UHV heat treatments on state-of-the-art fine grain niobium at temperatures between 800 ℃ and 1100 ℃ has been studied on samples with respect to grain growth, mechanical and thermal properties.

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Yes

Footnotes

[1] doi:10.18429/JACoW-SRF2021-MOPCAV004
[2] doi:10.18429/JACoW-SRF2021-MOPCAV012
[3] doi:10.18429/JACoW-SRF2023-WEIXA04

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