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Early exploration of zirconium doping SRF cavities with chemical vapor deposition

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The introduction of zirconium to niobium SRF cavities suggests a promising alloy with lower RF losses, higher critical magnetic fields, and a higher endurance to gradients. However, difficulties in fabrication of a ZrNb alloy, especially on the irregular surface of SRF cavities, have slowed the applicatory study of this potential improvement. We utilize a newly commissioned chemical vapor deposition system to fabricate this alloy with minimal surface defects on irregular surfaces. We present the initial results of this method's effectiveness with surface characterization methods.

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Yes

Footnotes

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