22ND INTERNATIONAL CONFERENCE ON RF SUPERCONDUCTIVITY
September 21-26, 2025

Contribution ID: **80** Contribution code: **THA03** Type: **Invited Oral Presentation**

Improving quench fields of enhanced-Tc surfaces

Thursday 25 September 2025 09:10 (20 minutes)

The sensitivity of compound superconductors to gradient-limiting defects is well established. To overcome this challenge and develop recipes for enhanced-Tc surfaces that approach their fundamental limits, we take a multi-pronged theoretical approach: we identify material systems where low-Tc or normal-conducting defects are less likely to occur, where bulk superconducting properties favor proximity coupling of defects, and where clean interfaces with the niobium substrate allow for thinner films and better thermal stability. We present progress toward growing ultra-thin-film Nb-Zr and Nb3Al superconductors on niobium with the goal of achieving high quality factors at unprecedented fields.

I have read and accept the Privacy Policy Statement

Yes

Footnotes

Funding Agency

This work was supported by the U.S. National Science Foundation under Award PHY-1549132, the Center for Bright Beams

Author: SITARAMAN, Nathan (Cornell University)

Co-authors: VERBONCOEUR, Nicole (Cornell University); OSEROFF, Thomas (Cornell University); LIEPE, Matthias (Cornell University); PORTER, Ryan (SLAC National Accelerator Laboratory)

Presenter: SITARAMAN, Nathan (Cornell University)

Session Classification: Thursday Oral Session: A

Track Classification: MC2: Fundamental SRF research and development