SRF2025 TOKYO

22ND INTERNATIONAL CONFERENCE ON RF SUPERCONDUCTIVITY

September 21-26, 2025

Contribution ID: **73** Contribution code: **MOP21** Type: **Student Poster Presentation**

Commissioning of chemical vapor deposition system for superconducting thin films

Monday 22 September 2025 14:30 (3 hours)

Next-generation, thin-film surfaces employing Nb3Sn, NbN, NbTiN, or other compound superconductors are essential for reaching enhanced RF performance levels in SRF cavities. However, optimized, advanced deposition processes are required to enable high-quality films of such materials on large and complex-shaped cavities. For this purpose, Cornell University developed and commissioned a chemical vapor deposition (CVD) system that facilitates coating on complicated geometries with a high deposition rate. This system is based on a high-temperature tube furnace with a high-vacuum, gas, and precursor delivery system. Here, we present the commissioned system with the control aspects and safety considerations addressed and the materials we are interested in growing.

I have read and accept the Privacy Policy Statement

Yes

Footnotes

Both G. Gaitan and A. Grassl are primary authors of this contribution.

Funding Agency

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

Author: GRASSL, Alexis (Cornell University)

Co-authors: HOLIC, Adam (Cornell University); WENDLAND, Blake (Cornell University); MIDDLETON, Caleb (Cornell University); GAITAN, Gabriel (Cornell University); KULINA, Greg (Cornell University); SEARS, James (Cornell University); LIEPE, Matthias (Cornell University); QUIGLEY, Peter (Cornell University); HOWES, Will (Cornell University)

Presenter: GRASSL, Alexis (Cornell University)

Session Classification: Monday Poster Session

Track Classification: MC2: Fundamental SRF research and development