



Contribution ID: 95

Type: Fermilab open session

Enabling Role of Materials Science in Advancing Particle Physics Technologies

Wednesday, 22 March 2023 16:05 (5 minutes)

Materials science investigations have delivered critical improvements in particle physics technologies in recent years. By standing up unique capabilities aimed at understanding the role and impact of atomic defects, impurities, surfaces, and interfaces, Fermilab has demonstrated systematic improvements in the performance of technologies such as detectors, accelerators, quantum computers and sensors. For instance, state-of-the-art superconducting radiofrequency cavities for accelerator applications have been prepared through detailed investigations of heat treatments, while superconducting qubits that represent the leading edge in terms of coherence have been fabricated through a robust understanding of dissipation mechanisms on the atomic scale. I strongly advocate for continued and increased support of materials science projects in this realm as they will be essential for continued advancement of particle physics technologies over the next decade.

Please select if remarks will be in person or on zoom

In person

Do you describe your self as early career?

yes

Please add details of experiment/project that this abstract corresponds to?

This work is in the context of SRF, magnet, and quantum technology as part of APS-TD and SQMS

Primary author: MURTHY, Akshay (Fermi National Accelerator Laboratory)

Presenter: MURTHY, Akshay (Fermi National Accelerator Laboratory)

Session Classification: Open Session for remarks