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Point contact tunneling spectroscopy for SRF applications

Tuesday 23 September 2025 14:30 (3 hours)

Point Contact Tunneling Spectroscopy (PCTS) is a powerful technique ideal for investigating the surface superconducting properties of materials. Since it utilizes the oxides present on the sample's surface to probe the superconducting density of states, this tool is valuable for studying superconducting devices such as qubits and SRF cavities, where a native or engineered oxide layer is present on the surface. PCTS can uncover various phenomena at the oxide/superconductor interface, such as the presence of magnetic impurities or the proximity effect, which might play a significant role in the performance limitations of superconducting devices. Therefore, PCTS is highly useful for understanding the mechanisms that limit the capabilities of these devices, potentially leading to technological solutions. I will present our latest PCTS results obtained on Nb, Nb3Sn and NbTiN samples for RF applications.

I have read and accept the Privacy Policy Statement

Yes

Footnotes

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Author: CURCI, Ivana (Université Paris-Saclay)

Presenter: CURCI, Ivana (Université Paris-Saclay)

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