

# 26th National Symposium on Cryogenics and Superconductivity

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## Detection of quench location in 1.3 GHz single cell SCRF Cavity during cold testing in LHe bath at 2K

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### Content :

Detection of quench location is important to study the cavity performance limiting mechanisms. Temperature mapping system is a powerful diagnostic tool to identify the hotspots on the superconducting radio-frequency cavity surface during the cold test in liquid Helium at ~ 2K. During quenching of the cavity temperature rises in the range of few mK to few K in a time domain of few milliseconds. The detection of associated change in sensor output of the order of few micro Volts in super fluid liquid Helium at 2K in a comparable noisy background is the major technical challenge. A Silicon diode sensor based temperature mapping system is developed to map the temperature on the equator region of a single cell SCRF cavity during performance test at 2K in vertical test stand facility with a temperature resolution of 10mK and a time resolution of 1ms. This paper describes the status of the development & initial test results.

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