

PRELIMINARY RESULTS ON THE LASER HEATING INVESTIGATION OF HOTSPOTS IN A LARGE-GRAIN Nb CAVITY

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Abstract

Magnetic vortices pinned near the inner surface of SRF Nb cavities are a possible source of RF hotspots, frequently observed by temperature mapping of the cavities outer surface at RF surface magnetic fields of about 100 mT. Theoretically, we expect that the thermal gradient provided by a 10 W green laser shining on the inner cavity surface at the RF hotspot locations can move pinned vortices to different pinning locations. The experimental apparatus to send the beam onto the inner surface of a photoinjector-type large-grain Nb cavity is described. Preliminary results on the changes in thermal maps observed after applying the laser heating are also reported.

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