Study of Critical Temperature Distribution in SmBCuO Coated Conductor Using Low Temperature Scanning Laser Microscopy (LTSLM)

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Low temperature scanning laser microscopy (LTSLM) can be used for a two-dimensional display of various sample responses arising from the localized excitation. As shown in many experiments, LTSLM becomes particularly interesting when applied to superconductors. By using the SmBCuO coated conductor, we have measured the distribution of the critical temperature. We suspected the shorter once exposed laser beam time constant, the better signal to noise ratio we can get with eliminating whole substrate heating effect. We modified laser beam configuration by adopting maximum 3 kHz modulated laser beam which is produced by mechanical opto chopper as needed.