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Wed-Af-Po3.22-01 [79]: Study of magneto-resistance for low magnetic field measurement

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High-Q operation of Superconducting Radio Frequency cavity reduces power loss at surface and is desirable for CW operation.
For high-Q operation, it is needed to reduce the surface resistance, which is a summation of the BCS resistance and residual resistance. It was found that the residual resistance comes mostly from magnetic flux trapping during cool down process.
A magnetometer called “flux gate sensor”has been used to measure the ambient magnetic field but it is a large sensor compared to a cavity size and it is very costly.A sensor utilizes the magneto-resistance effects, such as AMR (Anisotropic-Magneto-Resistive), is smaller and less expensive than a flux gate sensor.
We have examined characteristics of magneto-resistance sensors at the room temperature and cryogenic temperature.The results are reported in this paper.

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