THESIS TITLE	**A Study on Magnetic Shielding for High Sensitivity HTSC Magnetic Sensor**
STUDENT	**Mr.Sanya Khunkhao**
THESIS ADVISOR	**Asst.Prof.Dr.Wisut Titiroongruang**
LEVEL OF STUDY	**Master of Engineering in Electrical Engineering**
DEPARTMENT	**Electronics Engineering Faculty of Engineering King Mongkut's Institute of Technology Ladkrabang**
YEAR	**1997**

Abstract

This thesis proposes a study on the magnetic shielding property of $YBa_2Cu_3O_{7-X}$ ceramic superconductor for accompanying with a high sensitivity magnetic sensor made of ceramic superconductor at temperature of 77K[16-17]. In addition, we also investigate influences of time-dependent magnetic field and stationary magnetic field on superconductor material of disk[6] shape and hollow cylinder shape(both opened end and sealed end)[18]. As the results of increasing the repetition of calcination process to eliminate carbon form the superconductor material and enhance a value of critical current density ,they are found that the ability to shield magnetic field of ceramic superconductor relies on the value of the applied magnetic strength and the critical current density of the bulk material. Among the studied frequency range from 50 Hz tol MHz, experiments are performed by using a pick-up coil and the high sensitivity magnetic sensor of high temperature superconductor at temperature of LN_2. This research is an application basis for high efficiency magnetic shielding using superconductor in high resolution magnetic field measurement devoid of external magnetic interference problem such as electronic measuring system and medical instrument e.g. SQUID magnetometer etc.[24-26].

When the characteristics of the magnetic field sensor made of fabricated superconductor are taken into account, it is evident that the magnetic sensor can significantly to a small magnetic

field isotropically, the explanation can be done by using a macrostructure model of ceramic superconductor ,and corresponds with the electrical property and the magnetic property of the sensor composed of weak link prepared on the Y-Ba-Cu-O sample connecting in form of microbridge. The detector is applied to measure very low magnetic field within the hollow cylinder of $YBa_2Cu_3O_{7-x}$ superconductor magnetic shielding system.