

MAGNETO ELECTRIC COUPLING MEASUREMENT SYSTEM

MODEL ME1.5 T



ABOUT THE SYSTEM

Thermodynamically it is predicted that the magneto-electric effect occurs in materials where magnetic-electric or magnetic-electric-elastic phases coexist. The magneto-electric coupling facilitates the modification of electric polarization when an external magnetic field is applied, and the modification of net magnetization due to the application of an external electric field. The effect is mathematically described by the magneto-electric coupling coefficient. The magneto-electric coupling coefficient can be electrically induced describing the change in the magnetic induction of the sample due to the application of an electric field.

MODEL ME1.5 T

Various tests performed by this model

- DC MEASUREMENTS
- AC MEASUREMENTS

Optional test performed by this model

- MAGNETIC POLLING



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MAGNETO ELECTRIC COUPLING MEASUREMENT SYSTEM



General Specifications

DC Pole Magnets

Field 0- 15000 gauss H frame magnets
Max. Pole gap 80 mm
(field vs. pole gap chart provided)
Pole diameter 4 inches (100mm)
Magnet diameter 12 inches
Resolution 10 gauss
H/U frame constructed with TATA A grade steel
Thermal protection, Air cooled

Magnetic Power Supply

80V, 8 amps bipolar power supply
Input 220V/440VAC 50Hz
Stability 1%
Overload protection
Thermal shut off

Hall Probe

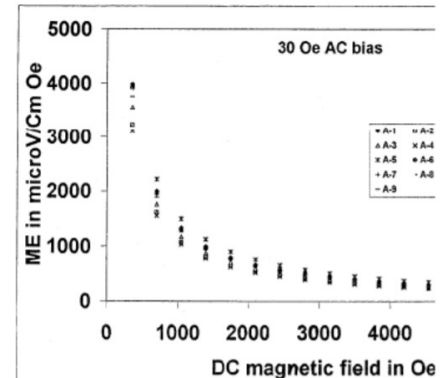
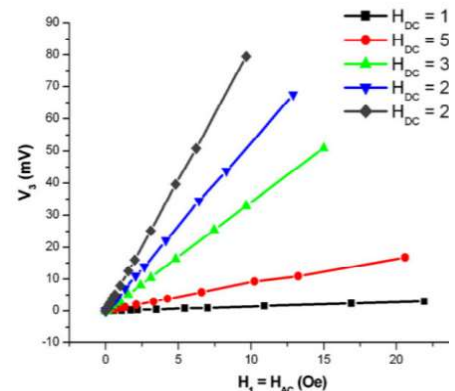
Hall probe display unit
Resolution 10 gauss in 2 Tesla range
PC controller card
Software for filed variation

Helmholtz coils

AC Field coils
Bipolar AC Input amplifier
0-12 volts 500 mA-

Wein bridge function generator

Frequency wave form sine wave
Amplitude control



MAGNETO ELECTRIC COUPLING MEASUREMENT SYSTEM

PC control

Fully functional manual/auto control
In auto data acquisition system
Data format ASCII
Values of alpha and beta
Values at different frequencies

Sample holder

Simple sample holder for pellet type samples
Dia of the sample 10 mm
Thickness 1-2.5 mm

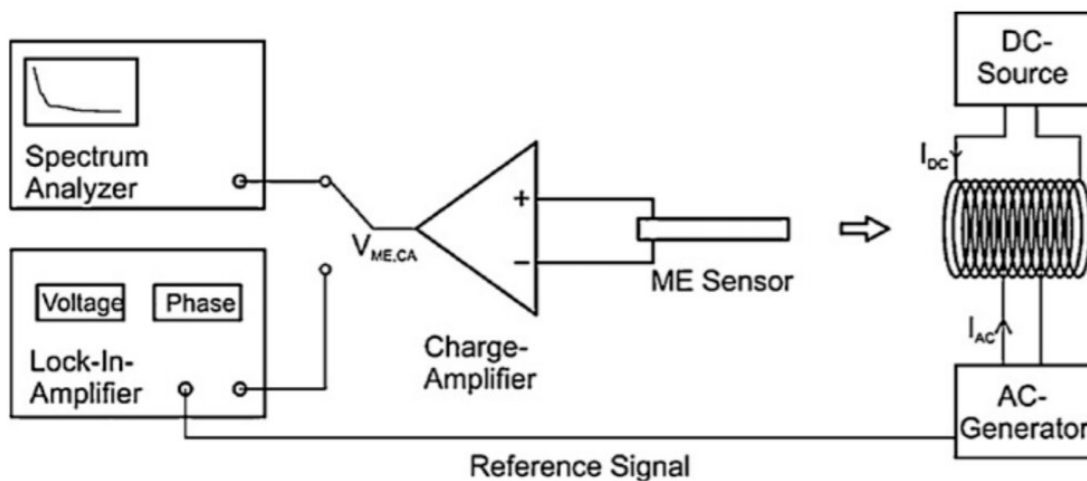
Lock-in amplifier

The user may opt to choose any standard lock in amplifier



System Test Specifications

- DC Field Resolution 10 gauss
- Stability $\pm 1\%$
- Frequency range 1Hz to ≥ 1 MHz
- AC Field Resolution 1oe to ≥ 200 oe
- Voltage signal range ≤ 0.01 uV



MAGNETO ELECTRIC COUPLING MEASUREMENT SYSTEM

- List of deliverables

- Bipolar DC Electromagnet
- Magnetic power supply
- Hall probe
- Helmholtz coils
- Wein Bridge Function Generator
- PC Control card
- Sample Holder



List of users

- IIT PATNA
- BUET BANGLADESH
- RCAT INDORE
- UNIVERSITY OF SHIMLA
- IIT CEHNNAI
- UNIVERSITY OF DELHI
- DMRL HYDERABAD
- CENTRAL UNIVERSITY HYDERABAD
- OSMANIA UNIVERSITY HYDERABA