

Memorandum M-2454

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Division 6 - Lincoln Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

SUBJECT: JOINT GROUP 37 - GROUP 63 MEETING ON FERRITE RESEARCH

To: Jay W. Forrester

From: D. R. Brown

Date: October 9, 1953

Abstract: Groups 37 and 63 will pool their resources to support a program for obtaining single-crystal ferrites. An evaluation of organizations best equipped to undertake the program is the first step.

Microwave line-broadening experiments will be undertaken to study polycrystalline samples from the $MgO \cdot MnO \cdot Fe_2O_3$ system.

Those attending the meeting held October 7, 1953, included S. Foner, R. H. Fox, and B. Lax from Group 37 and P. K. Baltzer, D. R. Brown, D. A. Buck, and N. Menyuk from Group 63.

Since both Group 37 and Group 63 need single-crystal ferrites for carrying out planned research, the two groups have decided to pool their resources to support a crystal-growing effort.

A preliminary evaluation of the crystal-growing situation should be conducted to determine what methods are possible, the problems associated with each of the methods available, the organizations which are capable of growing single crystals, and the organizations most likely to be able to supply the needs of Groups 37 and 63.

The only methods available appear to be: (1) melt, (2) flame, and (3) hydrothermal.

A number of organizations are interested in growing single-crystal ferrites. The following is a partial list: (1) Alfred University, (2) Brush, (3) Bell Telephone Laboratories, (4) Sprague, (5) Horizons, Inc. (6) LIR, (7) Linde Air Products, (8) AFCRC, (9) Group 63, (10) IBM, (11) Swiss Jewel, (12) Hershaw, (13) Rutgers University, (14) Bureau of Mines, (15) Ferroxcube, (16) Philips, (17) Sylvania, (18) Mallory. The first five organizations listed appear most promising as possible sources of single-crystal ferrites and the recipients of support from the Lincoln Laboratory.

Frank Vinal will be asked to complete the preliminary evaluation of methods and organizations begun at this meeting. After the preliminary evaluation is complete, several of the most promising organizations can be visited to permit a more complete evaluation.

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Vinal's work reported in Division 6 Memorandum M-2442 was discussed. This is a systematic investigation of the $\text{MgO}\cdot\text{MnO}\cdot\text{Fe}_2\text{O}_3$ system to determine regions of maximum hysteresis-loop rectangularity.

Group 37 is also interested in this ferrite system for its microwave properties. Our common interest in this system should be a great advantage. Vinal will plan to supply samples to Group 37 and should contact J. O. Artmann, and P. E. Tannenwald. Microwave line-broadening experiments will be planned.

Weekly meetings of this type will be held but should be limited to one-hour duration. The next meeting will be held at 9:30 a.m. on Wednesday, October 14.

Signed David R. Brown
David R. Brown

DRB/jk

cc: Group 63 Staff
Group 37 Staff
Lou Gold