

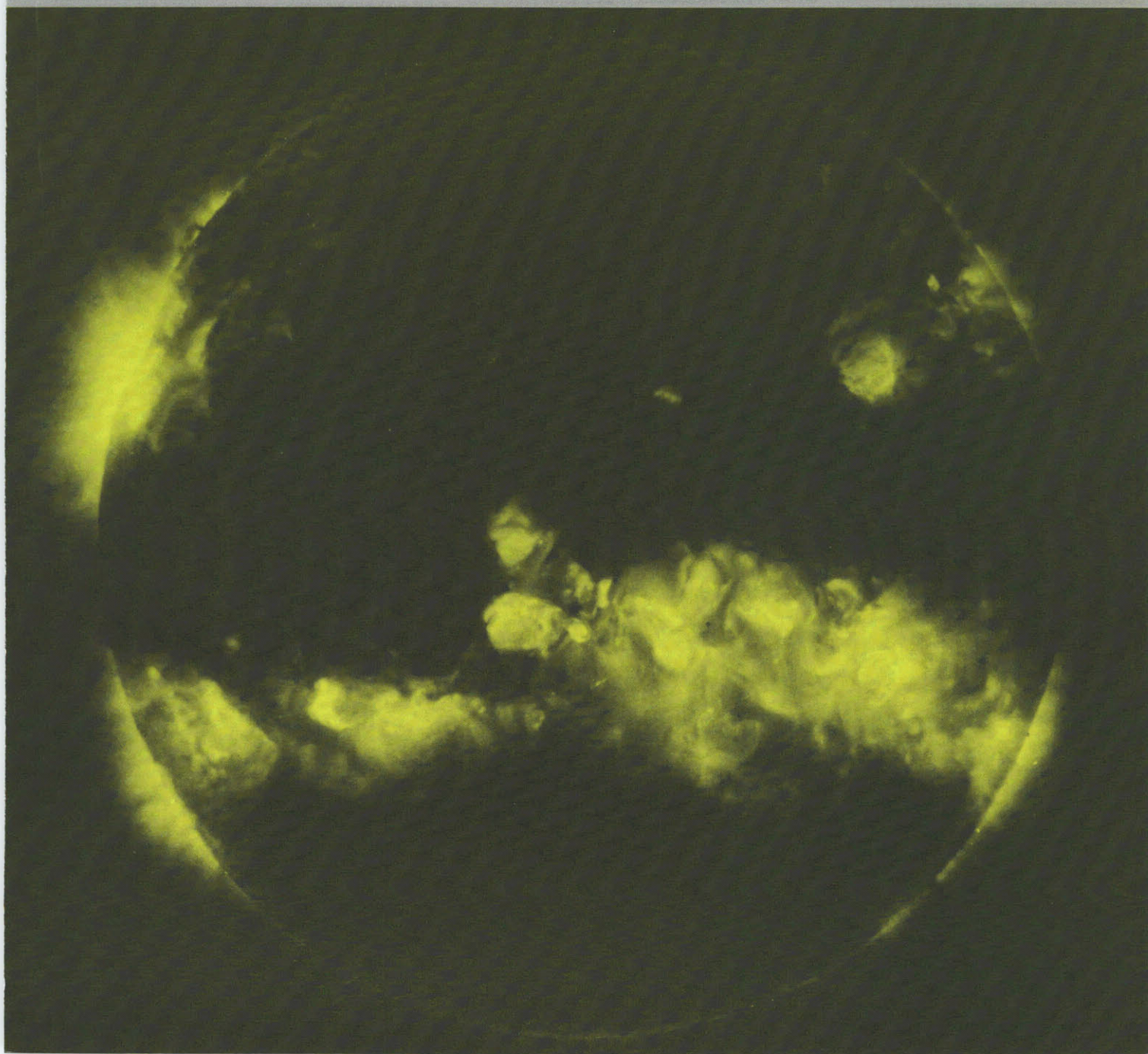
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

The RESEARCH LABORATORY *of* ELECTRONICS

PROGRESS REPORT

NO. 134

JANUARY 1–DECEMBER 31, 1991



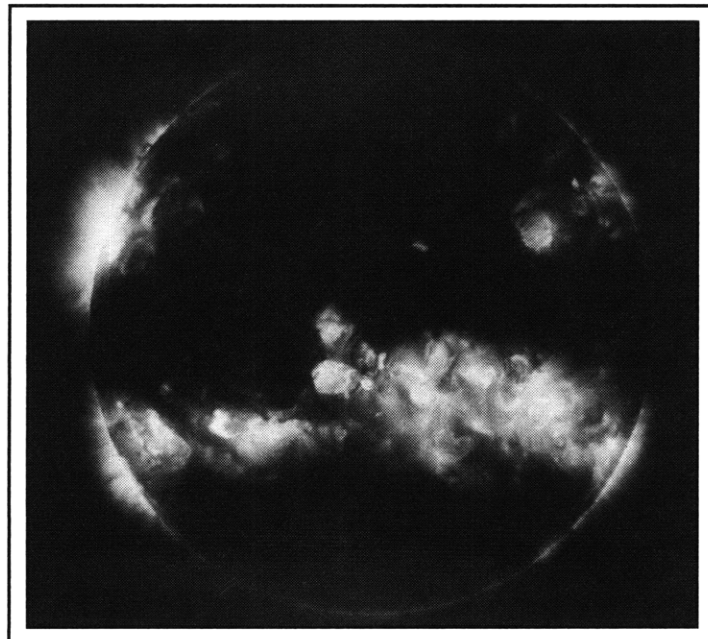
RLE Progress Report

No. 134

January 1 - December 31, 1991

Submitted by

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Professor Daniel Kleppner



**Research Laboratory of Electronics
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RLE Progress Report Number 134

Cover and title page:

This is an adaptation of an x-ray picture of the sun showing coronal holes, active regions, and coronal loops. The photograph from which this design was adapted was provided courtesy of Dr. Leon Golub (Ph.D. '72) of Harvard University's Center for Astrophysics; photo credit: IBM Corporation and the Smithsonian Astrophysical Observatory. This photograph follows from the research of Professor Bruno Coppi of RLE and the Department of Physics and reflects his research on the physics of the solar corona. A relevant paper is "Coronal Loops—Current-Based Heating Processes," by P. Beaufumé, B. Coppi, and L. Golub, which will be published in *Astrophysical Journal* 393: (1992).

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Introduction

The Research Laboratory of Electronics

The Research Laboratory of Electronics (RLE) was established in 1946 as the Institute's first interdepartmental laboratory. Originally organized under the joint sponsorship of the Departments of Physics and Electrical Engineering, RLE has broadened its interests to cover a wide range of research.

The RLE environment provides both the freedom of action essential in an academic institution and the availability of large-scale laboratory facilities and services required by researchers. RLE's interdisciplinary setting offers many opportunities for creative and collaborative research. By fostering this powerful combination of research and education, RLE effectively penetrates beyond the horizon of new ideas and information.

RLE Progress Report

RLE Progress Report Number 134 describes research programs at RLE for the period January 1 through December 31, 1991. Each chapter of the *Progress Report* contains both a statement of research objectives and a summary of research efforts for research projects listed. Faculty, research staff, students and others who participated in these projects are identified at the beginning of each project, along with sources of funding.

There are four appendices at the end of the report: Appendix A is a bibliography of RLE publications and papers presented by RLE staff during 1991; Appendix B is a roster of current RLE staff; Appendix C is a list of RLE faculty and staff milestones and honors received during 1991; and Appendix D is an index of RLE sponsors. In addition, the Project Staff and Subject Index provides access to the information in this report.

RLE Progress Report Number 134 was produced by the RLE Communications Office. Further inquiries may be addressed to:

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