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Massachusetts Institute of Technology Undergraduate Research Journal

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**Massachusetts
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Technology**

**UNDERGRADUATE
RESEARCH JOURNAL**

Volume 11, Fall 2004

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Contributors

Luis Abrishamian-
Garcia
Daniel Barclay
Shuonan Dong
Ian Driver
Nupur Garg
Mariel John
Gargi D. Khare
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Joseph Lee
Issel Anne L. Lim
Rachel Livingston
Christopher MacMinn
Hana Oh
Ariel Rodriguez
Leslie Rozeboom
Kristin Smith
Alison Taylor
Dheera Venkatraman

Layout & Production

Process Corporation
Tom Pixton

Cover: A lab kit for 6.188 ("Power Electronics Laboratory"), a new class introduced this fall. The class is the result of thesis work by graduate student Mariano Alvira IV under Profs. Steven Leeb and James Kirtley. For more information, see Ariel Rodriguez's article in the UROP Summaries section.

Photograph by Jee-Yun Kim.

Welcome to the Fall 2004 issue of the *MIT Undergraduate Research Journal*. In this eleventh edition of *MURJ*, we present a diverse set of reports that includes modeling extended battery discharge, analyzing cell death assays, and modifying cytokines. These papers are featured alongside topics that range from a critical review of Atkins-type diets to an analysis of the rising rates of HIV infection in India, specifically among women.

This edition marks the entrance of our new UROP Summaries section, featuring synopses of student work in the Undergraduate Research Opportunities Program at MIT. The UROP Summaries section will soon be accompanied by the Insider's Guide to UROPS (IGU), a website on which students answer surveys based on their research experiences at MIT. Using this anonymized searchable database, other students can glimpse the types of work available and choose the UROP that best fits their needs. To see what students have written or to submit your own survey, go to <http://igu.mit.edu>.

These additions to *MURJ* are consistent with our goal of promoting public awareness about research around the MIT community. We hope that this interdisciplinary publication will serve as a forum for debate and discovery, through which our readers may access arguments relating to the intersection of scientific research and public policy.

Our profound gratitude goes to those who have helped us make this goal a reality. We acknowledge Dean Larry Benedict and the MIT Fund, as well as the Undergraduate Association Finance Board, the UROP office, and Student Life Program office for their financial support of *MURJ*. Special thanks also go to the Departments of Materials Science and Engineering, Physics, Chemical Engineering, Aeronautics and Astronautics for their monetary contributions.

We are continually looking for dedicated staff members, and we encourage you to join our team of writers, editors, reviewers, and contributors. We hope this volume of *MURJ* will inspire you to join our journal by editing or by contributing your own work to the Spring edition. As a student-run, nonprofit journal that showcases the research of MIT undergraduate students, we do accept several articles that have been published elsewhere. Submissions for the spring issues are due on February 12, 2005.

To learn more about the *MIT Undergraduate Research Journal*, please email murj-public@mit.edu or visit our website, <http://web.mit.edu/murj>.

Sincerely,

The Editors of *MURJ*

**Massachusetts Institute of Technology
77 Massachusetts Avenue
Cambridge, MA 02139**