



# THE WILLIAM LOWELL PUTNAM MATHEMATICAL COMPETITION

## ANNOUNCEMENT OF WINNERS

of the forty-first annual competition held on December 6, 1980

### WINNING TEAMS

Rank	School	Team Members (in alphabetical order)
1st	WASHINGTON UNIVERSITY, ST. LOUIS	Kevin P. Keating, Nathan E. Schroeder, Edward A. Shpiz
2nd	HARVARD UNIVERSITY	Michael Raship, Ehud B. Reiter, Brian F. Sheppard
3rd	UNIVERSITY OF MARYLAND, COLLEGE PARK	Ravi B. Boppana, Brian R. Hunt, Eric I. Kuritzky
4th	UNIVERSITY OF CHICAGO	Daniel J. Goldstein, Nicholas F. Reingold, Michael P. Spertus
5th	UNIVERSITY OF CALIFORNIA, BERKELEY	Randall L. Dougherty, Lin Goldstein, Robin A. Pemantle

The first place team receives an award of \$5,000 and each member of the team receives \$250. The awards for second place are \$2,500 and \$200; for third place \$1,500 and \$150; for fourth place \$1,000 and \$100; and for fifth place \$500 and \$50.

In each of the following categories, the listing is in alphabetical order.

### THE PUTNAM FELLOWS – THE FIVE HIGHEST RANKING INDIVIDUALS

Each receives an award of \$500

ERIC D. CARLSON	Michigan State University
RANDALL L. DOUGHERTY	University of California, Berkeley
DANIEL J. GOLDSTEIN	University of Chicago
LAURENCE E. PENN	Harvard University
MICHAEL RASHIP	Harvard University

### THE NEXT FIVE HIGHEST RANKING INDIVIDUALS (Each receives an award of \$250)

JOEL FRIEDMAN	Harvard University
FRED W. HELENIUS	Massachusetts Institute of Technology
IRWIN L. JUNGREIS	Cornell University
MICHAEL J. LARSEN	Harvard University
ARTHUR S. PARKER	University of Kansas

### HONORABLE MENTION – TEAMS

CALIFORNIA INSTITUTE OF TECHNOLOGY	R. Sekhar Chivukula, Peter W. Shor, John R. Stembridge
CASE WESTERN RESERVE UNIVERSITY	Edward J. Branagan, Jr., Scott R. Fluhrer, David A. Natwick
MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Andrew J. Bernoff, Josh D. Cohen, Lorenzo A. Sadun
MICHIGAN STATE UNIVERSITY	Eric D. Carlson, Karl A. Dahlke, Lloyd A. Rawley
PRINCETON UNIVERSITY	Mark P. Kleiman, Jacob Nemchyonok, Charles H. Walter

### HONORABLE MENTION – INDIVIDUALS

MICHAEL H. ALBERT, University of Waterloo	EVAN MORTON, Harvard University
RICHARD J. BEIGEL, Stanford University	ROBIN A. PEMANTLE, University of California, Berkeley
DAVID D. CHAMBLISS, Princeton University	MATTHEW J. RAW, Washington University, St. Louis
STEPHEN J. CURRAN, Beloit College	EHUD B. REITER, Harvard University
MARC A. DREXLER, Johns Hopkins University	ZINORY REICHSTEIN, California Institute of Technology
PAUL FEIT, Harvard University	SUBIR SACHDEV, Massachusetts Institute of Technology
PAUL N. FELDMAN, Yale University	LORENZO A. SADUN, Massachusetts Institute of Technology
SCOTT R. FLUHRER, Case Western Reserve University	ERIN J. SCHRAM, Michigan State University
BRIAN R. HUNT, University of Maryland, College Park	NATHAN E. SCHROEDER, Washington University, St. Louis
HOWARD J. KARLOFF, University of Pennsylvania	PETER W. SHOR, California Institute of Technology
KEVIN P. KEATING, Washington University, St. Louis	EDWARD A. SHPIZ, Washington University, St. Louis
GARY R. LAWLOR, Brigham Young University	MICHAEL SPERTUS, University of Chicago
FRANKLIN M. MALEY, Amherst College	JAMES VAN BUSKIRK, University of Minnesota, Duluth
MICHAEL P. MATTIS, Harvard University	CHARLES H. WALTER, Princeton University
VICTOR J. MILENKOVIC, Harvard University	LAWRENCE B. WEINSTEIN, Yale University
DAVID J. MONTANA, Harvard University	DAVID A. WILLIAMS, Harvard University

ROBERT L. ZAKO, Harvard University

A total of 2043 students from 335 colleges and universities in Canada and the United States participated in the competition. There were teams from 237 schools. More complete details will appear in the American Mathematical Monthly.

March 6, 1981

L. F. Klosinski, Director; G. L. Alexanderson and A. P. Hillman, Associate Directors