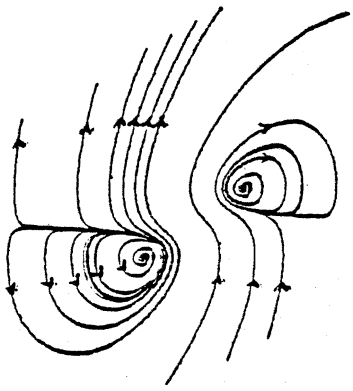
MUDD MATH



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Greetings to the extended community of HMC math majors — past, present, and future! The friendships and associations formed while you were on campus we hope are still maintained and remembered fondly. This newsletter, which is a collaborative effort of the math faculty, alumni and students, is a way to keep in touch. Please visit our new offices in the W.M. Keck Laboratory directly south of Sprague Library when you are in Claremont, and share your significant events by sending us news items for inclusion in the next newsletter. "Letters to the Editor" are also welcome. Address your letters to MUDD MATH, Professor Alvin M. White, Department of Mathematics, Harvey Mudd College.

STUDENT ACTIVITIES

Kathy Van Stone '85 and **Jed Herman** '85 are in Oxford for the fall semester. **Crystal Gordon** '86 is at the University of Edinburgh for the year. **Kurt Overley** '86 was one of 10 grand prize winners in the 1983–84 Honeywell Futurist Awards Competition. **Susan Parker** '86 is the president of the Math Club.

ALUMNI ACTIVITIES

Leo Marcus '66 of Aerospace recently had lunch at the Faculty House with some of the HMC professors from Hum/Soc, Physics, and Mathematics to discuss the new course on the History and Technology of Arms Control since 1946. The idea of offering such a course comes from a suggestion made by Leo to some of the HMC Faculty. **Patrick Costello** '75 and his wife Patricia both teach mathematics, computer science, and statistics at Eastern Kentucky University. Patrick was a teacher in the Governor's Gifted Scholars Program for high school students last summer ('84). **Jim Dewar** '66 of the Rand Corporation recently visited the campus as a member of the Clinic Advisory Committee and then spoke to the Math Club on The Role of Mathematicians in Industry. The day was topped off with dinner at a local restaurant with Professors Coleman and White talking about the old and new days. **Peter Paterno** '72 is an attorney at Manett, Phelps, Rothenberg and Tunney. Pete is the attorney for the Jackson Tour and also for the Prince Tour. When Pinky **Nelson** '72 blasted off at Cape Canaveral, cheering him on his way was Peter, **Rick Greer** '72, **Ted *Cox*** '72, **Don Rodriguez** '72, **Jerry Tunnell** '72, **Andy Wehrenberg** '72, **Dick Jones** '72, and **Jon Giebel** '72 among the crowd. In return for the invitation to Cape Canaveral, Pete sent Pinky two tickets for the Jackson Tour performance in Houston. **Jim** Bean '77 put his Stanford OR degree to use by developing, with his colleagues at the University of Michigan, a system to schedule football games of the PAC–10. He and his wife **Margaret Helms Bean** (Scripps '78) have a new daughter, Meghan born July 26. **Jerry Tunnell** '72 was awarded a Sloan Foundation Fellowship and is at Rutgers. **George McNulty** '67 at the University of South Carolina is a recent new father,

FACULTY MATHEMATICAL ACTIVITIES

Professor Robert Borrelli is on a sabbatical leave in 1984–85 and is visiting the ESIEE in Paris, France.

Professor Stavros Busenberg was a visiting research professor at the University of Trento, Italy in July, and he gave an invited talk at the Symposium on Mathematics and Computers in Biomedical Applications held at the National Institute of Health in Bethesda, MD in August.

Professor Courtney Coleman is acting chairman of the Mathematics Department for 1984–85, while Professor Borrelli is on leave. The two of them completed their book "Differential Equations: A Modeling Approach". It was derived from the Borrelli-Coleman notes familiar to many of our alumni. Also he has written with Professor Borrelli and Dana Hobson [HMC '85], an article entitled **Poe's Pendulum**, which will appear in the Mathematics Magazine.

Professor John Greever is on a sabbatical leave in 1984–85 and is visiting the Institute of Animal Resource Ecology of the University of British Columbia in Vancouver.

Professor Melvin Henriksen gave a talk at an international conference on ordered algebraic systems held in June at the University of Marseilles in France, and he gave an invited address at the mini-conference on general topology at the City College of New York in July. In August he gave a colloquium talk at the University of Kansas in Lawrence, and spent a week there doing research. He continues his duties as program chairman of the Southern California Section of the Mathematical Association of America for a second year, and has been appointed to the Committee on the status of the profession of the American Mathematical Society.

Professor Henry Krieger recently published a paper **A** new look at **Bergstrom's** theorem on convergence in distribution for sums of dependent random variables, Israel Journal of Mathematics 47 (1984), 32–64. Along with Professors Sue Feigenbaum, James Lucke, and Ron Teeples of Claremont McKenna College, he completed the first phase of development of a package for MATHLIB on Instructional computer graphics for economics and statistics. (See the article What is **MATHLIB?** in this issue of the Mathematics Newsletter.)

Professor Alden Pixley has returned from a sabbatical leave in 1983–84 during which he visited the University of California in Los Angeles. He gave a talk at a conference on Universal algebra and lattice-theory held at the Citadel in South Carolina in July. He also gave a talk before the mathematics colloquium of the Claremont Colleges in September.

Professor Alvin White has written an essay Teaching mathematics as **though** students mattered that will be in a book of essays to appear in February of 1985, published by Jossey-Bass Publishers of San Francisco. He has been appointed to the Editorial Board of the journal Innovative Higher Education.

VISITING PROFESSORS OF MATHEMATICS AT HMC

The Mathematics Clinic has attracted four visiting professors this year. Jim **Denton** is a statistician from Amherst College in Massachusetts, and is particularly interested in biostatistics, reliability, and nonparametric statistics. Kenneth **Lane's** home college is Colby in Maine, where he has been involved with a project to introduce discrete mathematics into the basic curriculum. Roland di **Franco** has returned for a second visit from the University of the Pacific. He co-directed a Math Clinic project for Arco two years ago, and now is directing Math Clinic projects with Honeywell and with General Dynamics. **Guilford** Spencer is on leave from Williams College, Massachusetts, where he was chairman of the mathematics department for many years. All four visitors are sponsored in part by a grant from the Sloan Foundation to the HMC Mathematics Department in support of the idea of the Mathematics Clinic.

What Is MATHLIB???

MATHLIB is a software package developed by Harvey Mudd students over the last few years. Among those involved are Kevin Carosso ('82), Jerry Bakin ('82), Ned Freed ('82), and Dan Newman ('85).

MATHLIB caters to a need for a graphical analysis tool simple enough for an inexperienced user but sophisticated enough to cope with the highly complex tasks involved in mathematical and scientific research. The present form of MATHLIB is the result of over a decade of software development devoted to this goal.

Two tools are at the heart of MATHLIB. The symbolic algebra system, PRS, manipulates algebraic expressions, while the graphics interface, TPL, controls graphics output. Based on these two subprograms, other data manipulators and modelers supply the user with effective means of problem solving.

MATHLIB is versatile. Everything from simple numerical calculations to complex symbolic differentiation and numerical integration can be performed by using the CALC program. Solutions to a variety of problems, and graphical presentation of results can be obtained using the FORMULATE and GRAPH programs. MATHLIB modelers include: BVP, a boundary value problem solver; DEQSQLVE, a differential equation solver; FFT, a signal analysis package; and MATRIX, a matrix manipulation package. Many other MATHLIB programs exist to perform text manipulation, VMS utility functions, or system performance monitoring.

MATHEMATICS NEWSLETTER PRIZE PROBLEMS

The Mathematics Newsletter will present a prize problem in each issue. A prize of $50 will be awarded for its solution according to the following rules:

1. The prize will be awarded to the HMC undergraduate who submits the most elegant, best written solution by the announced deadline.

2. If no HMC undergraduate submits a satisfactory solution by the announced deadline, then the prize will be awarded on the same basis to an HMC Alumnus.

3. If no HMC undergraduate or alumnus submits a satisfactory solution by the announced deadline, the prize will be awarded to any HMC faculty member or staff member not employed by the Mathematics Department.

4. The best satisfactory solution or solutions will be published in the next issue of the Mathematics Newsletter if one is submitted by the announced deadline. Otherwise, the problem will be recycled.

Problem 1 - Deadline - December 14,1984

Prove or disprove: There is at least one straight line normal (perpendicular) to the graph of $y = \cosh x$ at a point $(a, \cosh a)$ and also normal to the graph of $y = \sinh x$ at a point $(b, \sinh b)$.

Solutions should be sent to the Mathematics Department of Harvey Mudd College.

DO YOU KNOW ALICE MORGAN???

She seems to know HMC. Alice Morgan has written a Harlequin Romance novel "Deception for Desire' in which HMC math majors are featured. On page 14 the following conversation occurs between the personnel manager and the company president.

"I'm certain this woman will be an asset to our company."

"Why?" Brett demanded, leaning back in his chair.

"For one," the old man answered sincerely', "she graduated from your alma mater as a math major."

"So?"

"A degree from Harvey Mudd College should overshadow her grades not being up to your normal demands since it's academically one of the toughest..."

"I can't risk the reputation of my company by hiring every unemployed applicant."

"Won't you reconsider, if only to help out a fellow alumnus?" Mr. Jordan asked hopefully.

"I donate several thousand dollars a year to the alumni fund. I don't feel obligated to hire the entire graduating class as well."

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