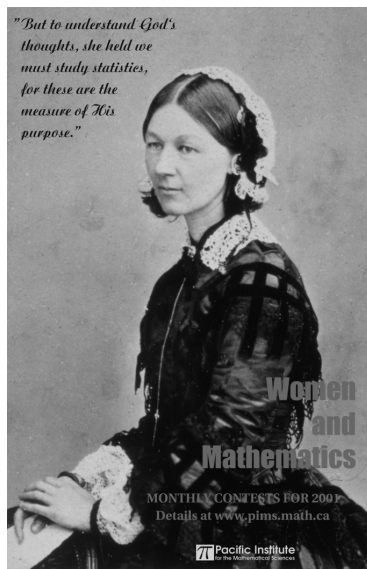
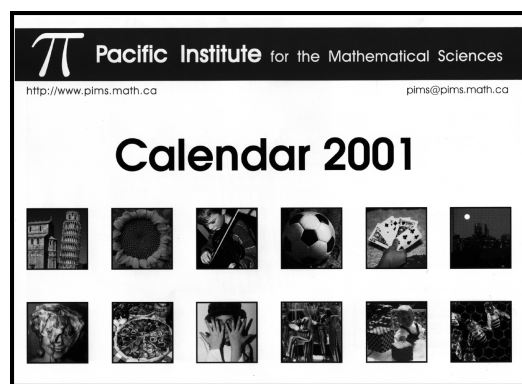


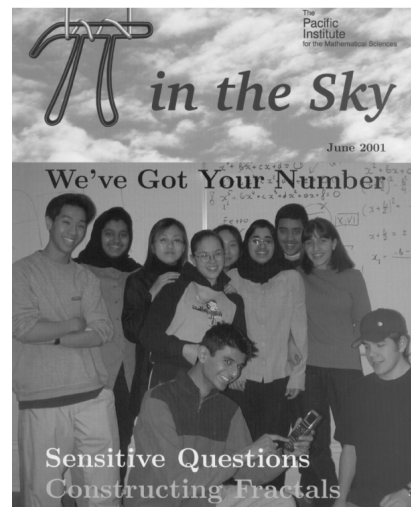
VI. COMMUNICATION OF THE MATHEMATICAL SCIENCES

PIMS Calendar for 2001 which features the *Mathematics is Everywhere* posters.



The July poster in the 2001 *Women and Mathematics* campaign: Florence Nightingale was influential in the application of statistics.

The third issue of *Pi in the Sky*. Students from Old Scona Academic High School in Edmonton are featured on the cover.



Promoting Mathematics Awareness

Mathematics is Everywhere

Coordinator: Klaus Hoechsmann (PIMS)

Mathematics is Everywhere was a poster campaign featuring the ever growing importance of Mathematics in modern society and its ubiquity in the world around us. A series of eye-catching posters in a mathematical theme were placed in public transport in Vancouver and Victoria and in public schools in Calgary. These also appeared in schools, exhibitions, calendars, etc.

Mathematics is Everywhere was part of PIMS' contribution to the World Mathematical Year 2000 sponsored by UNESCO and the IMU and was one of the many activities in PIMS' continuing Mathematics Awareness Campaign.

A new poster came out at the start of every month. Each poster contains an interesting math question and invites the viewer to visit a web page to learn more about the problem. Also on the web page it was possible to submit a solution to the problem. Those submitting a correct solution were eligible for a prize of \$100.

The motivating force behind this PIMS project, conceived and created by **Klaus Hoechsmann**, was the desire to increase public awareness of the surprising ways mathematics is touching many aspects of our lives. At the very least, the hope was to catch the attention of many, capture the imagination of some, and convince a few to dig deeper.

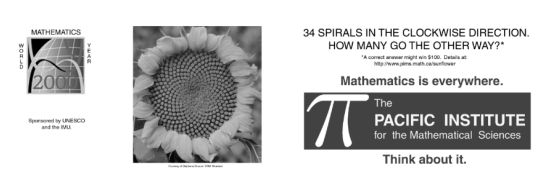
Each month, a snapshot of the familiar world around us was presented: a sunflower, a child playing the violin, a soccerball, a hand of cards,

the full moon above the city skyline, a shampoo-covered head, a pizza, painted fingernails, a puppet, cubes, honeycomb and the Leaning Tower of Pisa. The posters are shown on the next page.

The questions are designed to highlight a wide range of mathematical topics, such as combinatorics, probability, logarithmic curves, Fibonacci numbers and more. They also vary in level of difficulty to stimulate public interest among all age groups from elementary school students to adults. The questions were posed in such a way that unambiguous numerical answers can be given. Each month, one winner was drawn from the correct answers. However, it is nourishing the mind, rather than nourishing a competitive spirit, that stood out as the primary goal of the project. This is most evident to those who venture to probe the intricate connections that the sometimes deceptively simple questions conceal. Such an exploration is possible through browsing the webpage and the associated links, made available with each month's question.

In order the winners were Pam Liem, Stefan Lukits, Katy Cheng (Vancouver), Jordan Wan (Saskatoon), Collin Tsui (Calgary), Wayne Chevrier (Burnaby), Albert Chan (Boston), Chad Simpson (Vancouver), Paige Zanewick (Calgary), Yakov Shklarov (Calgary), Tom Watson (Surrey) and Russell Wierzba (Calgary).

The contest series has been very successful and its closing was marked by the publication of 2001 wall calendar designed by Heather Jenkins (PIMS). It was distributed to numerous schools and mathematics departments in Canada and USA. It has a complete collection of the pictures and associated questions of the poster campaign.



34 SPIRALS IN THE CLOCKWISE DIRECTION. HOW MANY GO THE OTHER WAY?
*A correct answer might win \$100. Details at: <http://www.pims.math.ca/sunflower>

Mathematics is everywhere.

THE PACIFIC INSTITUTE
for the Mathematical Sciences

Think about it.

February Poster on “The Sunflower Spiral Count



TWO SLICES IN EACH OF FOUR STYLES -- NO SAME ONES ADJACENT. HOW MANY WAYS CAN YOU DO IT?
*A correct answer might win \$100. Details at: <http://www.pims.math.ca/pizza>

Mathematics is everywhere.

THE PACIFIC INSTITUTE
for the Mathematical Sciences

Think about it.

August poster on “combinatorics and pizza”



MARIO PLAYS AN A ON THE D-STRING OF HIS VIOLIN. WHAT PERCENTAGE OF THE STRING IS VIBRATING?
*A correct answer might win \$100. Details at: <http://www.pims.math.ca/violin>

Mathematics is everywhere.

THE PACIFIC INSTITUTE
for the Mathematical Sciences

Think about it.

March Poster on “The Violin String”



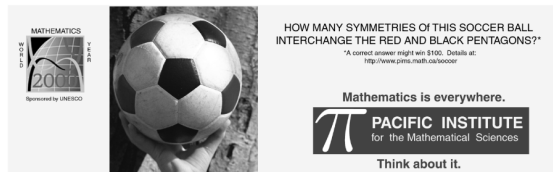
LAURA'S FINGERNAILS SHOW A PRIME NUMBER IN BINARY FORM. WHAT IS THE NEXT HIGHER PRIME?
*A correct answer might win \$100. Details at: <http://www.pims.math.ca/primes>

Mathematics is everywhere.

THE PACIFIC INSTITUTE
for the Mathematical Sciences

Think about it.

September poster on “primes in binary”



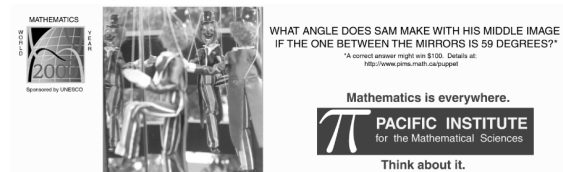
HOW MANY SYMMETRIES OF THIS SOCCER BALL INTERCHANGE THE RED AND BLACK PENTAGONS?
*A correct answer might win \$100. Details at: <http://www.pims.math.ca/soccer>

Mathematics is everywhere.

THE PACIFIC INSTITUTE
for the Mathematical Sciences

Think about it.

April Poster on “Soccer Ball Symmetries”



WHAT ANGLE DOES SAM MAKE WITH HIS MIDDLE IMAGE IF THE ONE BETWEEN THE MIRRORS IS 59 DEGREES?
*A correct answer might win \$100. Details at: <http://www.pims.math.ca/puppet>

Mathematics is everywhere.

THE PACIFIC INSTITUTE
for the Mathematical Sciences

Think about it.

October poster on “puppets and linear mappings”



WITH WHAT PROBABILITY IS THE QUEEN OF SPADES AMONG 5 CARDS FROM A STANDARD DECK OF 52?
*A correct answer might win \$100. Details at: <http://www.pims.math.ca/cards>

Mathematics is everywhere.

THE PACIFIC INSTITUTE
for the Mathematical Sciences

Think about it.

May Poster on “Chance and Randomness”



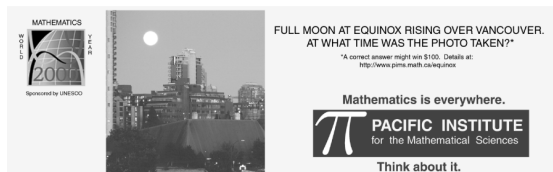
WITH HOW MANY EXTRA BLOCKS CAN CARLO MAKE HIS TWO SOLID CUBES INTO A SINGLE BIG ONE?
*A correct answer might win \$100. Details at: <http://www.pims.math.ca/cubes>

Mathematics is everywhere.

THE PACIFIC INSTITUTE
for the Mathematical Sciences

Think about it.

November poster on “arithmetic and cubes”



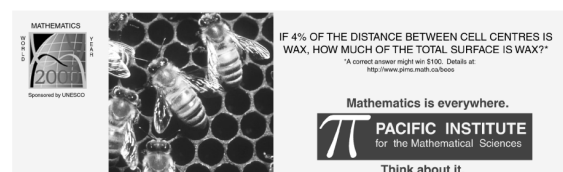
FULL MOON AT EQUINOX RISING OVER VANCOUVER. AT WHAT TIME WAS THE PHOTO TAKEN?
*A correct answer might win \$100. Details at: <http://www.pims.math.ca/equinox>

Mathematics is everywhere.

THE PACIFIC INSTITUTE
for the Mathematical Sciences

Think about it.

June Poster on “Telling Time by the Sun and Moon”



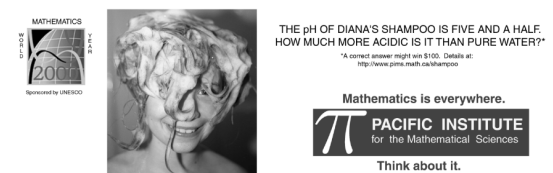
IF 4% OF THE DISTANCE BETWEEN CELL CENTRES IS WAX, HOW MUCH OF THE TOTAL SURFACE IS WAX?
*A correct answer might win \$100. Details at: <http://www.pims.math.ca/bee>

Mathematics is everywhere.

THE PACIFIC INSTITUTE
for the Mathematical Sciences

Think about it.

December poster on “honeycomb packings”



THE pH OF DIANA'S SHAMPOO IS FIVE AND A HALF. HOW MUCH MORE ACIDIC IS IT THAN PURE WATER?
*A correct answer might win \$100. Details at: <http://www.pims.math.ca/shampoo>

Mathematics is everywhere.

THE PACIFIC INSTITUTE
for the Mathematical Sciences

Think about it.

July poster on “the pH of shampoo”



WHAT PORTION OF TIME DOES A STONE SPEND IN THE MIDDLE THIRD OF ITS FALL FROM THE TOWER?
*A correct answer might win \$100. Details at: <http://www.pims.math.ca/tower>

Mathematics is everywhere.

THE PACIFIC INSTITUTE
for the Mathematical Sciences

Think about it.

January poster on “calculus of falling objects”

Women & Mathematics

Coordinators: Krisztina Vásárhelyi and Heather Jenkins (PIMS).

Building on the momentum of the *Mathematics is Everywhere* poster campaign, PIMS is continuing the project in 2001 with a new theme and new format. Klaus Hoehsmann's innovative poster series has demonstrated that given the right approach, it is possible to rouse interest in the "terminally unpopular".

With the intention of introducing the public, and in particular young people, to the idea that mathematics is a career asset, a colourful palette of biographies will be presented monthly. The poster series **Women and Mathematics** will showcase portraits of twelve women who have made contributions to the broad field of the mathematical sciences.

Mathematics is expanding rapidly beyond its traditional domains. With the growth of information technologies in all fields, the demand for mathematically trained individuals in the work force will continue to rise. Ironically, mathematics still suffers from a bad reputation. Fear and loathing of the subject is firmly established already at the elementary school level. The attitude that mathematics is a career obstacle continues to influence education choices. Girls are especially susceptible to rejecting a course of study which favours mathematical content. The "smart girl" stigma among teenagers can be a powerful deterrent.

The *Women and Mathematics* campaign will present an alternative, much more positive, image of mathematics in the lives of women. Mathematics can involve lifelong dedicated research, it can be an enjoyable pursuit and it can represent a valuable tool in a variety of endeavours. The last point is aptly illustrated by the case of Florence Nightingale. She is a prominent figure and role model, widely acknowledged for her achievements in the fields of nursing and public health. Yet her perhaps less well known contributions to statistics have been pivotal to her other accomplishments.

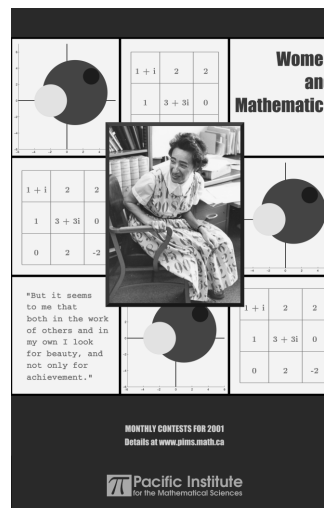
The target audience for this project includes students in elementary and secondary schools as

well as the general public of any age or gender. However, by focusing on women we want to draw attention to the problem of low female participation in the mathematical sciences.

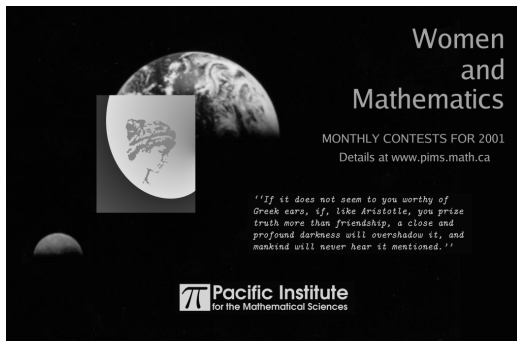
The contest itself promotes internet-based biographical research in addition to problem-solving. A set of quiz questions will be posted on the contest website. One of the questions will be a mathematics problem, highlighting the field of involvement of the featured individual. An-

swers to the remaining biographical questions can be found by searching the web. This approach encourages contestants to read and learn about women in mathematical pursuits. Posters have been distributed to schools in BC and Alberta to encourage initiatives for class projects. The posters have also appeared in public libraries as well as in universities across North America and internationally.

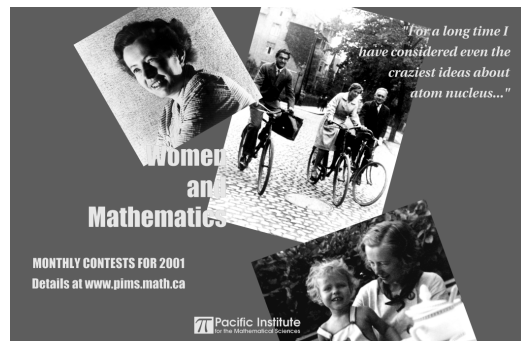
Her life might have been the subject of a storybook: **Sophie Germain** dressed up as a man to be admitted to the *École Polytechnique* where her mathematical genius was discovered, and she was the secret saviour of Gauss, whose life was threatened during Napoleon's invasion. In May, PIMS was treated to a special poster-presentation of Sophie Germain. **Jeni Rae Duschak**, a young American artist who studied mathematics and liberal arts, generously donated her time to produce a beautiful poster for the contest. Jeni Rae has a website about Sophie's life which includes a biography that she tells as a story illustrated with her drawings. Our discovery of her site led to an enjoyable collaboration which resulted in the special poster.



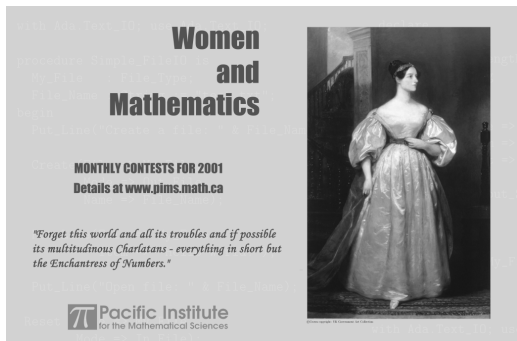
Olga Taussky-Todd from April.



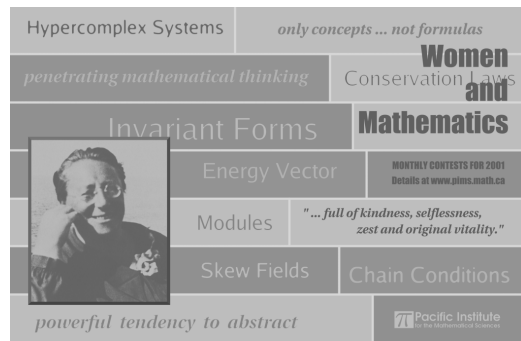
The February poster featuring Hypatia of Alexandria, last of the Alexandrian scholars.



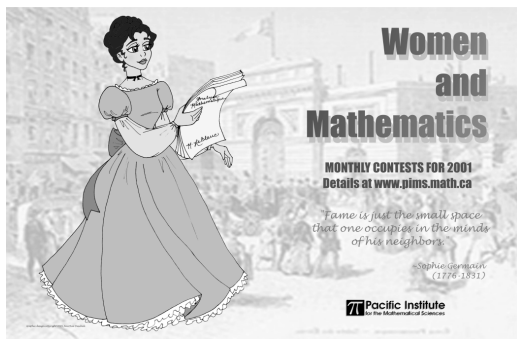
Nobel Prize winning theoretical physicist Maria Goeppert-Mayer in August.



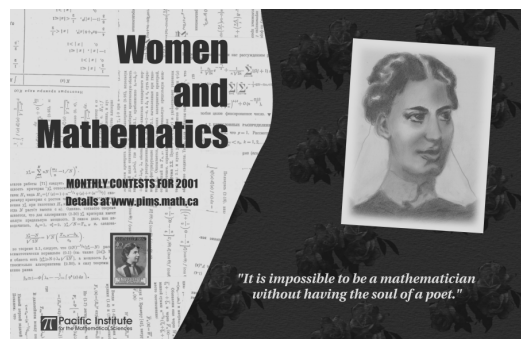
Ada Lovelace, namesake of the computer language Ada from March.



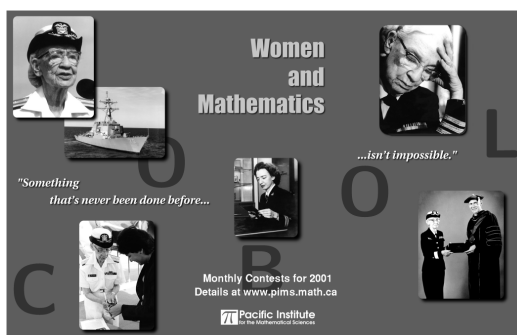
Emmy Noether one of the great mathematical minds of this century featured in September.



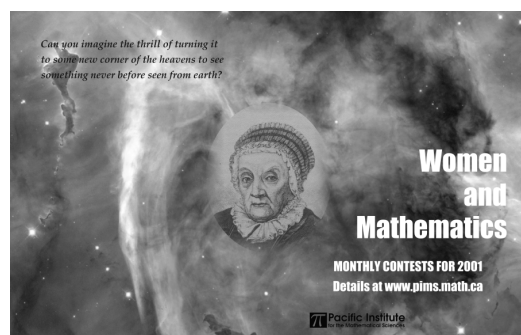
The May poster designed by Jeni Rae Duschak.



October's poster featuring Sofia Kovalevskaya.



Grace Hopper developed the computer language COBOL and featured on the June poster.



Observational astronomer Caroline Herschel featured in November.

Pi in the Sky

Pi in the Sky is a mathematical newsletter targeted at the Junior and Senior High School students and educators, *Pi in the sky* is produced by mathematicians at the University of Alberta, for distribution across the BC and Alberta. This new and popular semi-annual publication promotes all aspects of the mathematical sciences. The first 3 issues are available online through the PIMS website. The Editors in Chief are Nassif Ghoussoub (PIMS Director) and Wieslaw Krawcewicz (U. Alberta). John Bowman, also from U. Alberta is the Associate Editor. The rest of the editorial Board consists of Peter Borwein (SFU), Florin Diacu (UVic), Klaus Hoeschmann (UBC), Michael Lamoureux (U. Calgary) and Ted Lewis (U. Alberta).

Pi in the Sky is a periodical designated for high school students in BC and Alberta with the purpose of promoting mathematics, establishing direct contact with teachers and students, increasing the involvement of high school students in mathematical activities, and promoting careers in mathematical sciences.

This journal, aimed at an average student, has the following objectives:

- to promote meaningful and exciting mathematics;
- to inform students and teachers about mathematical sciences;
- to increase participation of students in math related activities;
- to encourage girls to get involved in mathematical sciences;
- to establish a dialog between students, teachers and academics;
- to promote new and/or innovative teaching methods;
- to change any negative stereotype image of math.

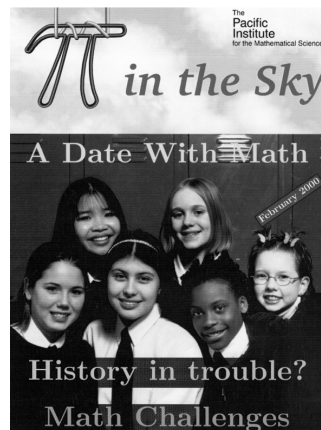
The first issue of *Pi in the Sky* includes the articles *The Perfect Education System for an Affluent Society* by Andy Liu, *Solving Problems*

can be Fun by Ambikeshwar Sharma, and *How do I love thee? Let me count the ways!* by Laurent W. Marcoux. The cover features students from the Nellie McClung Girls' Junior High Program at Oliver School in Edmonton.

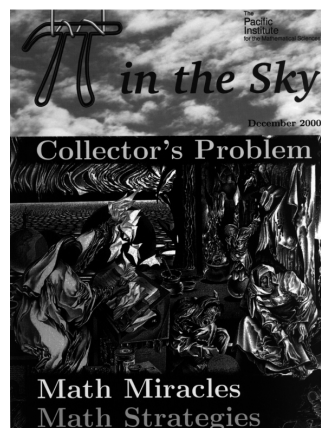
In the second issue of *Pi in the Sky* Akbur Rhemtulla writes about *Counting with Base Two and the Game of Num*, and Byron Schmuland about the *Collector's Problem*. Readers learn about π in *The Number π and the Earth's Circumference* by Wieslaw Krawcewicz.

The cover shows a fragment of a painting by prominent Russian mathematician Anatoly T. Fomenko which was inspired by mathematical ideas.

The June 2001 and third issue of *Pi in the Sky* includes *We've Got Your Number* by Ted Lewis, *Have You Used Illegal Drugs Lately? or How to Ask Sensitive Questions* by Carl Schwarz, and *Constructing Fractals in Geometer's SketchPad* by Michael Lamoureux. These articles explain how visa card companies, for example, determine whether or not you have entered a valid number, the ideas behind randomized response surveys, and how to build fractals using Geometer's SketchPad software.



The first issue of *Pi in the Sky*.



The second issue of *Pi in the Sky*.

Hypatia's Street Theatre, Frederic Wood Theatre, UBC December 10, 2000

PIMS hosted the premier of a new play about mathematics that was shown to the general public at the Frederic Wood Theater at UBC. The play, *Hypatia's Street Theatre*, is co-authored by PIMS Education Facilitator, Klaus Hoechsmann and playwright Ted Galay. It represents an experiment of mathematical exposition in a theatrical context and is organized around three mathematical skits. The principal ambition of this play is to show mathematics on stage—not just *talking* about it, but actually *doing* it—in whatever form the public can take. To be honest, this “public” includes most professional mathematicians, because they, too, are easily confused when some one radically alters their frame of reference. The fact that most people cannot dance like Astaire, sing like Domingo, or write like Shakespeare, does not exclude them from these activities. Hypatia's imaginary skits invite us to approach mathematics in the same way.



Director Bryan Wade (left) with Klaus Hoechsmann.

Dramatis Personae

Historical: Cyril, Archbishop of Alexandria; Hierax, a religious fanatic; Hypatia, mathematician, astronomer, and philosopher; Orestes, Roman Prefect.

Fictional: Dario and Lydia, disciples of Hypatia; Samuel, junior colleague of Hypatia, Chrysostomos, poet and play-wright.

The Setting

Hypatia, the last of the Alexandrian scholars recorded by history, was brutally murdered by a fundamentalist mob in March of 415 AD. Her father Theon, a mathematician, philosopher, and director of the University (called the “Museum”) of Alexandria, had seen to it that his talented daughter received the best available training in all conceivable disciplines from rhetoric through music to mathematics. Blessed with physical strength and beauty, she was by all accounts a model of rectitude and modesty. It is difficult to exaggerate the esteem in which she was held by contemporaries, whether in Athens, Rome, or Alexandria itself.

Though none of her written work has survived, we know that it included books on the mathematics of Diophantus and Apollonius, and probably one on Ptolemy's astronomical system. Even today, these topics would not be easily accessible to the occasional amateur: they indicate that mathematics must have been Hypatia's major focus. She also made a name for herself as one of the main proponents of Neo-Platonism. It is said that she often donned her “philosopher's cloak” and went among the crowds to philosophise with strangers. The present play takes the liberty of imagining this urge to communicate expanded to the more difficult subject of mathematics — through theatrical sketches — motivated by her love for the theatre which is mentioned in some of the writings about her.

Although a play like this cannot avoid distorting history — for instance, by the use of modern idiom and images — it will try to respect major facts and events, as far as these are known. What it cannot undertake, however, is to transplant the general outlook and mind-set of these ancient personages faithfully into the present.

Outside mathematics, the main historical reference for the play is Edward Gibbon's *Decline and Fall of the Roman Empire*.

The Plot

The plot unfolds in Cyril's third year as Bishop of Alexandria, a position which appears, at that time, to have been more important than the Sees

of Rome or Constantinople. In the play he resolutely but uncomfortably follows the footsteps of his ruthless uncle Theophilus. His fate is to be a man of action, while his temperament would have been more suited to a life of quiet contemplation. In his drive to forge a unified Christian civilisation, he comes down hard on Jews and Christian heretics, and must still fight rearguard actions with Hellenic elements.

Orestes's dilemma is the power vacuum in which he must maintain an appearance of order. Theodosius I — personal friend to Theophilus — had been the last emperor who ruled the whole Roman Empire, east and west. In the time of the play, the Eastern Emperor was a boy, the Western one a weakling. Historically, Orestes and Cyril knew each other well enough that they could have been friends, had not Hypatia — according to some of her detractors — bewitched the former.

Hypatia's dilemma is caused by her enormous intellectual capacity, which keeps pulling her into the ivory tower, and her political instinct, which tells her that the fate of Civilisation will be decided on street and market place. She is further motivated by a sense of obligation toward her father Theon. We are still indebted to this father-and-daughter team for some exceptionally valuable scientific work, and it is acknowledged that the daughter on her own ventured into even loftier mathematical fields. What is fictional (but not impossible) is Theon's involvement in the education of both Orestes and Cyril and in the salvaging of treasures from the gutted Serapeum.

Hierax is portrayed as a religious fanatic. According to one chronicler, he was "a Christian possessing understanding and intelligence who used to mock the pagans but was a devoted adherent of the illustrious Father the patriarch, Cyril, and was obedient to his monitions." At any rate, he got himself beaten up after some heckling during a theatrical performance. In this play, he has his own larger agenda: rousing the populace to do God's will as defined by Hierax. Another shady historical figure — one Peter the Reader — is his invisible rival.

Technology-based Mathematics

The Pacific Institute is working to provide a useful, comprehensive collection of tools for teaching, learning and promoting mathematics and disseminating research with computers. Examples of such resources will include on-line interactive courses and modules, reusable software components, research and computational tools and an interactive electronic mathematics journal. The target user group includes mathematicians, scientists, educators (mostly secondary and post-secondary) and students of the mathematical sciences.

A number of technology projects have received PIMS funding in the past and are continuing under their own resources. One ongoing project, described below, is indicative of the objectives of PIMS technological innovations.

The KnotPlot Project

Coordinator: Bob Scharein (UBC)

This project builds on the research described in the author's doctoral dissertation *Interactive Topological Drawing*. In particular, one goal is to make the large amount of experimental data obtained during the thesis research widely available to the mathematical community at large via the World Wide Web (WWW). A second goal was to make the software used to obtain the data (principally KnotPlot) available for academics and other researchers, or for artists and people with a general interest in knots.

KnotPlot Download Site

The KnotPlot program has been ported to a variety of computers and operating systems. Versions of the program for Windows 85/98/NT,

Macintosh (PowerPC), Linux, Silicon Graphics workstations and Sun workstations, can be downloaded from

www.math.ca/knotplot/download.html.

Knot Theory on the World Wide Web

The web site provides mathematicians with a comprehensive encyclopaedia of information on cataloged knots and links. Initially, this will be limited to the nearly 400 knots and links found in Appendix C of D. Rolfsen's book, *Knots and Links*. In addition to providing images of each knot (in several different formats), the database will also contain topological information of use to knot theorists. In particular the following topological and geometric data are available:

- Crossing number, stick number, unknotting number
- Signature, Arf invariant, knot group
- Fourier coefficients
- Closed braid description(s)
- Conway number
- Alexander, Jones, HOMFLY, Kauffman and other polynomials
- Known symmetries along with a catalogue of interesting symmetric presentations (both for smooth version and minimal stick version)
- Sufficient invariants to distinguish from any other knot in the Rolfsen catalogue
- Vertex data giving an instance of the knot type

In addition to providing a resource for research mathematical scientists, the knot theory

website will also provide an on-line, high-quality, and interactive instructional tool for learning knot theory and its relation to other areas of mathematics and science. The pedagogical section of the knot theory website will be accessible to wide audience and suitable in some degree for instructional purposes for students from K through 12 and beginning university level. Activity areas will include being able to draw your own knot and obtain output, learning about tying simple knots with real rope (this will include animations of knot tying), and knot art in which the students will learn appreciation for mathematics through beautiful images of knots.

The UBC Sun SITE Project

Coordinator: Bill Casselman (UBC)

The SITE is one of about eight in North America, among them some of the most useful and popular Internet sites for University users. The official goal of Sun's project is for each SITE to operate as "a library, a publishing house, a distribution center and a technology showcase." In this vein, the aims of the UBC SITE include the introduction of more professional standards in high-tech electronic mathematics publication as well as involving local groups in a collaborative effort to produce high quality Internet material for use in the Mathematics community at large. The location of the UBC Sun SITE is: sunsite.ubc.ca.

New advances in programming languages—for example, Java, Postscript and HTML—together with the interconnectivity of the World Wide Web are providing mathematicians with unique opportunities to express their ideas in novel ways and to a wider audience. Although the role of the Internet in explaining mathematics is already beyond easy comprehension, the Sun SITE at UBC hopes to make a small start in raising standards. We hope to find a role as a moderator in the development of this new medium by providing a forum for the electronic publication of suitable work and by providing guidance through technical assistance and by example.

As one of roughly fifty Sun SITEs worldwide, the UBC project is the only Sun SITE serving primarily mathematical content. Because the SITEs are authorized by Sun and are known to have generally high standards, these sites have a tremendous number of users.

PIMS Offers Lectures via Streaming Video over the Internet

PIMS is now offering a new service to the mathematical sciences community: lectures over the internet using on-demand streaming video. The format that we are following is to offer both video of the lecture in Realvideo format and high resolution JPEG images of the speaker's slides, when possible. Our library of lectures is available at www.pims.math.ca/video.

Lectures currently available are:

Panagiotis Souganidis, U. Texas at Austin, *Fully nonlinear stochastic partial differential equations* (4 lectures), PIMS Thematic Programme in PDEs - Workshop on Viscosity Methods, UBC, July 3-4, 2001

David Gillman, UCLA, *Odd embeddings on lens spaces*, PIMS Distinguished Lecturer Series, UBC, May 31, 2001

Brett Stevens, PIMS, SFU, *Mathematics and Literature: Cross Fertilization*, PIMS Changing the Culture, SFU at Harbour Centre, May 11, 2001

John Mighton, Fields Institute, *Breaking the Cycle of Ignorance*, PIMS Changing the Culture, SFU at Harbour Centre, May 11, 2001

Douglas Arnold, Director, Institute for Mathematics and its Applications (Minnesota), *Colliding Black Holes and Gravity Waves: A new Computational Challenge*, PIMS Distinguished Lecturer Series, UBC, May 16, 2001

John Rice, UC Berkeley, *A Simple Model for a Complex System: Predicting Travel Times on Freeways*, PIMS-MITACS Seminar on Computational Statistics and Data Mining, UBC, April 26, 2001

David Eisenbud, Director, MSRI (Berkeley), *Chow Forms and Resultants - old and new*, PIMS Distinguished Lecturer Series, UBC, April 12, 2001

Bengt Fornberg, University of Colorado, *Radial Basis Functions - A future way to solve PDEs to spectral accuracy on irregular multidimensional domains?*, IAM-PIMS Joint Distinguished Colloquium, UBC, March 27, 2001

Emil Martinec, University of Chicago, *D-branes as noncommutative solitons: an algebraic approach*, PIMS Pacific Northwest Seminar on String Theory, UBC, March 17, 2001

Amanda Peet, University of Toronto, *String theoretic mechanisms for spacetime singularity resolution*, PIMS Pacific Northwest Seminar on String Theory, UBC, March 17, 2001

Washington Taylor, MIT, *Tachyon condensation in open string field theory*, PIMS Pacific Northwest Seminar on String Theory, UBC, March 17, 2001

Dilip Madan, University of Maryland, *Levy Processes in Financial Modeling*, PIMS-MITACS Financial Seminar Series, UBC, March 9, 2001

Gunther Uhlmann, University of Washington, *The Mathematics of Reflection Seismology*, IAM-PIMS Joint Distinguished Colloquium, UBC, March 6, 2001

R. Douglas Martin, University of Washington, *MathSoft Robust Factor Model Fitting and Visualization of Stock Market Returns*, PIMS-MITACS Seminar Series on Computational Statistics and Data Mining, UBC, January 25, 2001

David Baillie, Simon Fraser University, *Comparative Genomics*, IAM-PIMS Joint Distinguished Colloquium, UBC, January 16, 2001

Tudor Ratiu, École Polytechnique Fédérale de Lausanne, *Variational Principles, Groups and Hydrodynamics*, PIMS Distinguished Lecturer Series, U. Victoria, January 12, 2001

Mark van Raamsdonk, Stanford University, *D-particles with multipole moments of higher dimensional branes*, PIMS String Theory Seminar, UBC, November 28, 2000

Linda Petzold, UC at Santa Barbara, *Algorithms and Software for Dynamic Optimization with Application to Chemical Vapor Deposition Processes*, IAM-PIMS Joint Distinguished Colloquium, UBC, November 1, 2000

Robert Devaney, Boston University, *The Mandelbrot Set, the Farey Tree, and the Fibonacci Sequence*, PIMS Distinguished Lecturer, University of Victoria, October 20, 2000

David Brydges, University of Virginia, Series of 4 lectures on *Self-Interacting Walk and Functional Integration*, PIMS Distinguished Chair, UBC, Sept.–Oct., 2000

Beno Eckmann, ETH Zürich, *Idempotents in Group Algebras, Traces, and Geometry of Groups*, PIMS Distinguished Lecturer, U. Calgary, September 21, 2000

Beno Eckmann, ETH Zürich, *Projections, Group Algebras, and Geometry of Groups*, Algebra-Topology Seminar, UBC, Sept. 14, 2000

Beno Eckmann, ETH Zürich, *The Euler Characteristic - Some Variations and Ramifications*, PIMS Distinguished Lecturer, UBC, September 13, 2000

Thomas Duke, Cambridge, UK, *Cooperativity in Sensory and Motor Systems Biophysics and Biochemistry of Motor Proteins*, Banff, August 27, 2000

George Oster, UC Berkeley, *The Mechanochemist of ATP Synthase Biophysics and Biochemistry of Motor Proteins*, Banff, August 27, 2000

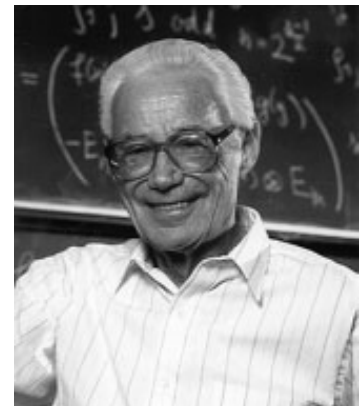
Peter Winkler, Bell Labs, *Random Homomorphisms*, PIMS Workshop on Colourings and Homomorphisms, SFU, July 20, 2000

Noga Alon, Tel Aviv University, *Acyclic coloring, strong coloring, list coloring and graph embedding*, PIMS Workshop on Colourings and Homomorphisms, SFU, July 19, 2000

Joan Hutchinson, Macalester College, *A 3-color theorem for some graphs evenly embedded on orientable surfaces*, PIMS Workshop on Colourings and Homomorphisms, SFU, July 19, 2000

Adrian Bondy, Université Claude Bernard, *Colourings and orientations of graphs*, PIMS Workshop on Colourings and Homomorphisms, SFU, July 18, 2000

Beno
Eckmann
(ETH)



Michael Albertson, Smith College, MA, *Extending graph colourings*, PIMS Workshop on Colourings and Homomorphisms, SFU, July 17, 2000

Bertrand Guenin, University of Waterloo, *Integral polyhedra related to even-cycle and even-cut matroids*, PIMS Workshop on Flows, Cycles, and Orientations, SFU, July 11, 2000

Matt DeVos, Princeton University, *Antisymmetric Flows* PIMS Workshop on Flows, Cycles, and Orientations, SFU, July 4, 2000

Chris Rodger, Auburn University, *Amalgamations of Graphs* (2 lectures), PIMS Workshop on Graph Decompositions, SFU, June, 2000

Ron Gould, Emory University, *Graph Decompositions* (2 lectures), PIMS Workshop on Graph Decompositions, SFU, June, 2000

H.S.M Coxeter, University of Toronto, *The Mathematics in the Art of M.C. Escher*, PIMS Changing the Culture 2000, SFU Harbour Centre, April 28, 2000

Sir Christopher Zeeman, *Geometric Unfoldings of a Difference Equation*, PIMS Distinguished Lecturer, U. Victoria, March 21, 2000

Yuri Matiyasevich, Steklov Institute of Math, *How to draw a tree correctly*, PIMS Distinguished Chair, U. Calgary, Mar. 9, 2000

Yuri Matiyasevich, Steklov Institute of Math, *On Hilbert's Tenth Problem - What can we do with Diophantine Equations* (5 lectures), PIMS Distinguished Chair, U. Calgary, Feb, 2000

Israel Gohberg, Tel Aviv University, *Infinite Systems of Linear Equations*, PIMS Distinguished Lecturer, U. Calgary, September 30, 1999

Sir Andrew Huxley, Trinity College, *The Background to the Hodgkin-Huxley Equation*, PIMS Workshop on Mathematical Cellular Biology, UBC, August 19, 1999

Richard Karp, University of Washington, *The Design of Molecular Bar Codes: A Combinatorial Problem from Molecular Biology*, PIMS Distinguished Lecturer, SFU, May 13, 1999

Mitchell Luskin, University of Minnesota, *Modelling, analysis and computation of crystalline microstructures*, PIMS Distinguished Lecturer, UBC, Sept. 10, 1998

Avi Wigderson, Hebrew Univ. of Jerusalem, *A Computational View of Randomness*, PIMS Distinguished Lecturer, UBC, April 6, 1998

Katherine Heinrich, Simon Fraser University, *PIMS and Mathematics Communication*, PIMS Opening Meeting, U.Victoria, Oct. 4, 1996

Richard Karp, University of Washington, *Combinatorial Optimization as a Tool for Molecular Biology*, PIMS Opening Meeting, U.Victoria, Oct. 4, 1996

Donald Saari, Northwestern University, *The Chaotic Complexity of Economics and the Social Sciences*, PIMS Opening Meeting, U.Victoria, Oct. 4, 1996



Donald Saari,
Riverside



Nobel Laureate Sir
Andrew Huxley