

DEPARTMENT OF MATHEMATICS

Report to the Board - Spring 2001

PERSONNEL

Allen Broughton will return to campus and resume his duties as Head of the Mathematics Department on June 1 following his two-quarter sabbatical leave. He spent the spring term at Mount Holyoke College following work during the winter term with the TED program.

Allen Klebanoff has resigned his position as Associate Professor of Mathematics and will be leaving in June to accept a position with the National Security Agency in Washington, D.C.

Ralph Wojtowicz, who has been serving as a Visiting Assistant Professor for two years, has accepted a position as Assistant Professor at the University of Dallas.

The Mathematics Department is looking forward to welcoming three new assistant professors this fall. They are **Diane Evans**, who will complete her Ph.D. this summer at the College of William and Mary; **Joshua Holden**, who is currently an Assistant Professor at Duke University; and **Thomas Langley**, who is completing his Ph.D. this spring at the University of California, San Diego.

In February **Terri Moscan** replaced **Patti Staggs** as secretary of the Mathematics Department.

GRANTS AND CONTINUING GRANT ACTIVITIES

The Rose-Hulman NSF-Research Experience for Undergraduates Program will continue during the upcoming summer under a newly renewed grant (\$144,000 for the three years 2001-2003). This summer's program, which will be directed by Allen Broughton and John Rickert, is the twelfth consecutive REU conducted at RHIT.

STUDENT ACTIVITIES, PRESENTATIONS, PUBLICATIONS and AWARDS

Pi Mu Epsilon Honorary Mathematics Fraternity

At its Spring 2001 Initiation Banquet the Indiana Gamma Chapter of Pi Mu Epsilon inducted 28 new members of the Rose-Hulman student body. The after dinner talk entitled "Portfolio Management in the Pharmaceutical Industry," was presented by John Anderson of Ely Lilly. Anderson, a Rose-Hulman alumnus, was the 1978 recipient of the Mathematics Department's Souseley Award.

Mathematics Competitions

1. Alfred R. Schmidt Freshman Mathematics Competition

Nineteen freshmen took part in the Twelfth Annual ARS Competition. First place was awarded to Jess Gunn, second place to John Keele, and third place went to three contestants – Andrew Batta, Vijay Kaul, and Ryan Poplin. The competition was held in late September.

2. Twenty-second Annual Virginia Tech Regional Mathematics Competition

In this nation-wide mathematics problem-solving competition, Rose-Hulman student Matt Katinas ranked eighth out of the 229 contestants. Ten RHIT students participated.

3. Sixty-first Annual Putnam Competition

Sixteen Rose-Hulman students participated in the Putnam Competition on December 2, 2000. The team consisting of Nathanael Berglund, Matt Katinas, and Dennis Lin earned a ranking of 21st nationally, the best RHIT team ranking since 1990. Among the sixteen participants, the following four individuals achieved rankings in the top 500: Dennis Lin (209 with 21 points), Nathanael Berglund (245 with 20 points), David Powder (422 with 11 points), and Michael Ewing (422 with 11 points). Steve Carlson served as the departmental advisor to the participants.

4. Mathematical Contest in Modeling

Three 2001 MCM teams from Rose-Hulman spent a four-day period in February competing in this annual international modeling contest. A team consisting of Nathanael Berglund, Dennis Lin, and Stephen Young received a meritorious designation in the competition while the team consisting of Eduardo Escardo-Raffo, David Powder, and Jonathan Webster won honorable mention. A third team consisting of Michael Ewing, Peter Nei, and Tom Schneider received a certificate of successful participation.

5. Indiana College Mathematics Competition

In the 2001 ICMC, which took place at the University of Indianapolis in March, the RHIT team consisting of Andrew Chi and Ann Chi won first place among all the teams representing colleges and universities throughout the state of Indiana. Other Rose-Hulman students participating on teams at the competition included Jonathan Webster, Peter Webb, Lucas Beverlin, David Powder, Stephen Young, and Michael Ewing.

Student Presentations

Two presentations were given by Rose-Hulman students at the 2001 Undergraduate Math Conference held March 16 & 17, 2001: **Brad Berron** presented *Improving Solar Car Race Strategy* and **Stephen Young** presented *Alternative to Factoring*.

The following students presented talks during the 2000-2001 Math Colloquium: **Tim Kilbourn** – *On the Probability that a Monic Integral Polynomial is Irreducible*; **Dennis Lin** – *Cwatsets*; **Janet Trimm** – *A new Formula for Computing Frobenius Numbers in Three Variables*; **Brad Berron, Todd Goldfinger, Mike Ritter, Tom Schneider, Bill Stephen and Jerod Weinman**, - *Improving Solar Car Strategy*.

Student Publications :

Senior Math and Computer Engineering student Dennis Lin published technical report MSTR 00-05 “Classification of Cwatsets Through Order 23.” He co-authored the paper with REU colleague Ben Goodwin.

Awards

During the Spring Honors and Awards Banquet, **Dennis Lin** received the Sausley award for outstanding performance as a senior. Also **Nathanael Berglund, Michael Ewing, Matthew Katinas, Dennis Lin, David Powder, and Stephen Young** received awards for outstanding performance on the various mathematics competitions during the year.

FACULTY and STAFF ACTIVITIES

Allen Broughton carried out his duties as Department Head in the fall. In the winter quarter, as part of his two-quarter professional leave plan, he worked with Dr. Art Western in the TED program seeking long-term project involvement with local companies in the areas of mathematical modeling, computation and systems modeling. In the spring he left for Mount Holyoke College to complete the second part of his professional leave program through research with colleagues at Mount Holyoke. He returns to his Department Head duties June 1. During the year he accomplished the following (details elsewhere in this report): applied for and was awarded (along with John Rickert and Kurt Bryan) a three-year NSF-REU grant, published two papers, completed another paper for submission, supervised the publication of two student technical reports, created a website for dissemination of student research, and gave five invited lectures at Mount Holyoke College. In addition, he prepared an equipment proposal for high performance computing and chaired the Search Committee for a Head of the Electrical and Computing Engineering Department. He continues to serve as the departmental webmaster.

Kurt Bryan has continued work with Michael Vogelius of Rutgers. He has also been working with Wayne Padgett in Electrical Engineering on problems related to the design of digital filters. Dr. Bryan, with Allen Broughton and John Rickert, helped with the successful renewal of Rose-Hulman's REU program grant from the NSF. Dr. Bryan will direct a group of students during the summer of 2002 on mathematics problems related to the nondestructive testing of materials.

During the fall term Professor **Stephan Carlson** attended the Undergraduate Mathematics Conference at Miami University in Oxford, Ohio, as well as the fall meeting of the Indiana Section of the MAA. At the MAA Section meeting, he presented a workshop on innovation in upper division math courses at Project

NExT-IN Session. In December his textbook *Topology of Surface, Knots, and Manifolds: A First Undergraduate Course* was published by John Wiley & Sons, Inc. During the winter and spring terms, Carlson served as Interim Mathematics Department Head, replacing Allen Broughton during his two-term sabbatical leave. He attended the Annual National Meeting of the AMS and MAA, which was held in New Orleans, LA, in January, and in March he attended the Rose-Hulman Undergraduate Mathematics Conference and the Spring Meeting of the Indiana Section of the MAA. His service to the MAA as Governor of the Indiana Section will continue through 2002, and he also served through this year on the MAA Taskforce on SIGMAAs.

David Finn attended the Midwest Geometry Conference at the University of Iowa, conferring with research colleagues, and both the fall and spring Indiana section meetings of the MAA. During the spring meeting of the INMAA, he gave a talk entitled "Which way did he say the bicycle went?" on current research with J. Tanton concerning the geometry of bicycle tracks. A paper on that research, "Can a bicycle create a unicycle track (other than a single straight track)?" was submitted to the *College Math Journal*. He also continued writing for *Math Reviews* and reviewed a research grant for the NSF. He served as department Liaison to the MAA and as advisor to the Math Club, and he co-organized the Rose-Hulman Undergraduate Math Conference with Tanya Leise.

LeRoy A. Franklin served this year on the mathematics department curriculum committee and the departmental hiring committee. Along with serving as the course coordinator for MA223, Engineering Statistics I, Dr. Franklin taught several new statistics elective courses, acted as advisor to the first of the Rose students who are electing the new statistics, and consulted with approximately 20 to 25 undergraduate students, graduate students, and Rose faculty in statistical issues relating to their senior projects, masters research and faculty grants. In November, he jointly presented a paper with Dr. Belva J. Cooley, University of Montana, at the National Decision Sciences Institute Meetings in Orlando, Florida entitled "Improving Quality through the Use of Binary Logistic Regression." Dr. Cooley and Dr. Franklin also have jointly submitted a paper to the *Journal of Statistical Education* entitled "An Experiential Approach to Integrating ANOVA Concepts." In April, he attended the First SIAM Conference on Data Mining in Chicago and was the invited speaker for the Wabash Valley American Society for Quality on the topic of "Total Quality Management Issues in the Air Florida Crash at Washington National Airport." Dr. Franklin continued to serve as Treasurer of the National American Statistical Association Quality and Productivity Section and as Treasurer of The Quality and Productivity Research Conference, and he also chaired and coordinated the committee of the Quality and Productivity Section in their announcement and selection of the Mary Natrella Scholarship winners. He will attend this year's conference (to be held in Austin, Texas under the sponsorship of Sematech and Advanced Micro Devices-AMD) and will present the scholarships at the Awards Banquet of the conference.

Elton Graves continues to be the State Director of the AMC 8, AMC 10 and AMC 12 mathematics competitions sponsored by the Committee on American Mathematical Competitions (CAMC) and is a member of the Executive Advisory Committee of the CAMC. In January he was co-coordinator for the panel discussion "Statistics and Mathematical Modeling" at the winter meetings of the MAA held in New Orleans. He was also scheduled to deliver a paper entitled "Constructing Airfoils on the Fly" at the New Orleans meeting but was unable to do so because of illness. He is a member of the Mathematics Across Disciplines committee of the MAA-CUPM, and member of the Executive Committee of the Mathematics Division of ASEE. He has refereed several papers that were presented for publication in the Conference

Proceedings of the 2001 Annual ASEE Meeting to take place in June. As advisor to Pi Mu Epsilon, he oversaw the induction of 28 new members into the mathematics honorary.

During the 2000-2001 academic year **Dr. Ralph Grimaldi** taught a variety of courses in graph theory, differential equations, probability, and engineering statistics. In addition to this, he was the co-coordinator (with Dr. John Rickert) of the 2000 Rose-Hulman High School Mathematics Contest, course coordinator for the probability course Mathematics 311 (in both the fall and spring quarters), chair of the Committee on Leaves, and a member of this year's hiring committee for the department. His paper "Compositions with Odd *Congressus Numerantium* in December 2000. In January 2001, Professor Grimaldi attended the National Mathematics Meetings in New Orleans, where he attended the meeting for the Mini-Course Committee and gave the paper, "Binary Operations: Enumeration and Applications", in the session on using technology in mathematics courses beyond Calculus. Late February found Professor Grimaldi at the 32nd Southeast International Conference on Combinatorics, Graph Theory and Computing at Louisiana State University in Baton Rouge, Louisiana. At this conference he chaired one of the sessions on combinatorics and presented the paper "Compositions Without the Summand 1". This paper has been submitted to the journal *Congressus Numerantium* for publication. In addition Professor Grimaldi was a co-author (with Professor Phyllis Z. Chinn of Humboldt State University and Professor Silvia Heubach of California State University, Los Angeles) on two other papers presented at this conference: "The Frequency of Summands of a Particular Size in Palindromic Compositions" and "Rises, Levels, Drops and Plus Signs in Compositions: Extensions of a Paper by Alladi and Hogatt". These papers have been submitted for publication to the journals *Ars Combinatoria* and *The Fibonacci Quarterly*, respectively.

Professor **Roger Lautzenheiser** has continued in his role as Editor of the *Rose-Hulman Institute of Technology Undergraduate Journal in Mathematics*. Since the initial issue in March, 2000, there have been two more issues published. There were 3 papers in the Fall, 2000 issue and also 3 papers in the Spring, 2001 issue. The journal has received many favorable comments and may be viewed at <http://www.rose-hulman.edu/mathjournal/>. In addition to editing the undergraduate journal, Professor Lautzenheiser attended the SIAM Conference on Applied Linear Algebra in Raleigh, NC, the MAA Section meeting in Indianapolis, and a Chautauqua short course in Dayton, OH.

Jeffery J. Leader's paper "The Zero-Crossing Phase-Lock Loop: Results from Discrete Dynamical Theory" (co-authored with Bill May) appeared in *Applied Math. Letters* and Dr. Leader presented it at the SIAM Dynamical Systems Conference in May. He also attended the Joint Math. Meetings in New Orleans and the Pacific Rim Dynamical Systems Conference. He submitted another paper with an ISU Life Sciences professor, a project that grew out of the local inter-college complexity group, and continued to work on his numerical analysis manuscript for Addison-Wesley Longman, as well as reviewing three linear algebra texts and one differential equations text. He chaired the department's Curriculum Committee and served on its Library and Computing Committees and also served on the Institute's Graduate Studies Committee, and is serving on a Chemical Engineering Thesis Committee.

Professor Tanya Leise attended the January 2001 AMS/MAA Joint Meetings in New Orleans, participating in Project NExT activities and presenting a talk, "A Shape Memory Alloy Calculus Project." She also gave a talk, "Mathematical Models from Psychology," in March at the MAA Indiana Section Meeting at the University of Indianapolis, as well as a seminar in the Rose-Hulman Math Department in May on "Mathematical Models of Shape Memory Alloys." A paper jointly authored with Jay R. Walton (of Texas

A&M University) entitled, "A general method for solving dynamically accelerating multiple co-linear cracks," was accepted for publication by the *International Journal of Fracture*. An article written with Prof. David Finn, entitled "Organizing an undergraduate math conference," appeared in the *MAA Focus* in January 2001. Professor Leise has also submitted an article, "A few mathematical models and metaphors from psychology," authored with Andrew Cohen (of Indiana University) to the *American Mathematical Monthly*. In March, she co-organized with Prof. David Finn the 18th Annual Rose-Hulman Undergraduate Mathematics Conference, which was a great success once again. Prof. Leise won a Sloan Foundation Pre-tenure Leave Fellowship to be applied Fall Quarter of 2001.

This November, **Dr. Robert Lopez** had his text *Advanced Engineering Mathematics* published by Addison Wesley. He gave book-related talks at the ICTCM conference in November, and at the Joint Math Meetings in January. In the fall, he was honored as a 25-year member of the MAA. In the spring, the Friends of The Cunningham Library at ISU honored him for the publication of his text. Logan Library at RHIT also had a celebration of the book with a reception and talk on March 7. In early May, the supplement *Calculus of Variations*, the ninth unit of the text *Advanced Engineering Mathematics* was also published. By May 25, Dr. Lopez will deliver the final installments of the solution manual for the text, providing full solutions to all 7000 exercises in the book.

During the academic year, **Jerry Muir** continued his research project in several complex variables with Ted Suffridge at the University of Kentucky. At the AMS/MAA Joint Mathematics Meetings in New Orleans in January, he presented the paper "Unbounded convex mappings of the ball in C^2 ," (joint work with Suffridge) which is scheduled to appear in the *Proceedings of the American Mathematical Society*. While at these meetings, he continued his participation as a Project NEXt fellow (New Experiences in Teaching, an MAA sponsored program) by attending several workshops. During the fall and winter quarters, Muir offered an independent study course in point-set topology to a senior mathematics major (Timothy Kilbourn), and in the spring, he developed and taught a course in Functional Analysis (MA 490). He also served on the institute's Quality of Education committee and chaired the department's Library committee.

David Rader participated in a number of on- and off-campus activities. During the academic year he not only taught the core courses MA 101, 113, and 311, but he also continued to teach MA590 "Operations Management" for the Engineering Management Program. In addition, he continued to teach the MA444 course, and he wrote a complete set of notes for use in the MA490 course on Combinatorial Optimization. He organized the Jump Start program prior to the start of classes last fall and was also the advisor for this year's Mathematical Contest in Modeling, which yielded a meritorious commendation and an honorable mention commendation. In addition, he served on the Institute's Commission on the Assessment of Student Outcomes (CASO) and chaired the Honors and Awards Committee. Professionally, he attended the fall and spring meetings of the Indiana Section of the Mathematical Association of America, and became the Public Information Officer of the section. He presented the paper "Optimal cell flipping to minimize channel density in VLSI design and pseudo-Boolean optimization" in invited colloquium talks at both Trinity University in San Antonio, Texas and the University of Richmond in Richmond, Virginia. In addition, during the academic year, the paper "Maximally Disjoint Solutions to the Set Covering Problem" was published in the *Journal of Heuristics*.

Professor John Rickert developed and taught the new class "Elliptic Curve Cryptography" during the winter term. He was coach for Rose-Hulman's teams competing in the Indiana College Mathematics

Competition administered at the spring meeting of the Indiana Section of the MAA at Earlham College. Each of the three teams finished among the top eight teams, and a team from Rose-Hulman won the competition. He served as a freshman advisor. He served on the Student Affairs Committee. Dr. Rickert was one of the organizers of the thirty-fifth annual Rose-Hulman High School Mathematics Competition. He served as a coach and organizer of the teams representing the state of Indiana at the American Regions Math League meet, to be held in June and is the Web-master for the American Regions Mathematics League web site. He has been working with the Rose-Hulman mathematics club, coordinating weekly mathematical problem solving sessions for area high school students. During the summer he will be heading a group studying number theory in Rose-Hulman's REU program.

Gary Sherman continued to develop *Indiscrete Discrete Mathematics*, his idiosyncratic approach to discrete mathematics, and to work on his research monograph entitled *The Theory of Cwatsets*, which is based on the work he and his students have done in inventing and developing the theory at Rose-Hulman. He refereed several papers, presented a four hour mini-course on cwatsets at the national AMS/MAA meetings in January, served as the extern examiner for a PhD thesis on converse Lagrange groups (National University of Ireland, Cork), served on the Institute PTR Committee, and advised the senior mathematics majors.

Professor Yosi Shibberu attended the Annual Convention of the National Society of Black Engineers in Indianapolis, IN, March 15-18, 2001. He served as course coordinator of DE & Matrix Algebra I and as the sophomore advisor for math majors. He also gave a talk in the math department seminar on Partial Least Squares Analysis.

Ralph Wojtowicz had a rewarding and enjoyable second year here at Rose-Hulman. During the year 2000 he attended the week-long International Category Theory Conference in Como, Italy. He also attended an AMS special session in Toronto and the Joint Mathematics Meetings in New Orleans. This summer he will defend his dissertation: "On categories of cohesive, active sets and other dynamics systems" and attend a conference on algebraic topological methods in computer science at Stanford. According to Ralph, he hopes to find students and colleagues at the University of Dallas, where he will join the Mathematics Department as an Assistant Professor in the fall, as friendly and ambitious as those at Rose-Hulman.

PRESENTATIONS, SEMINARS and COLLOQUIA

Off campus presentations:

Allen Broughton, "Transform Methods in Image Processing," Mathematics Faculty Seminar, Mount Holyoke College, Spring 2001 (3 talks)

_____, "Higher Genus Soccer Balls," Mount Holyoke Math Club Spring 2001.

David Finn, "Which way did he say the bicycle went?," Spring 2001 Meeting of the Indiana Section of the MAA, University of Indianapolis.

LeRoy A. Franklin (with Belva J. Cooley), "Improving Quality Through the Use of Binary Logistic Regression," National Decision Sciences Institute meetings, Orlando, November 2000.

_____, “Total Quality Management Issues in the Air Florida Crash at Washington National Airport,” Wabash Valley American Society for Quality, April 2001.

Ralph Grimaldi, “Binary Operations: Enumeration and Applications”, Session on using technology in mathematics courses beyond Calculus, National Mathematics Meetings, New Orleans, LA, January 2001.

_____, “Compositions Without the Summand 1,” 32nd Southeast International Conference on Combinatorics, Graph Theory and Computing, Louisiana State University, February 2001.

_____ (with Phyllis Z. Chinn and Silvia Heubach), “The Frequency of Summands of a Particular Size in Palindromic Compositions,” 32nd Southeast International Conference on Combinatorics, Graph Theory and Computing, Louisiana State University, February 2001.

_____ (with Phyllis Z. Chinn and Silvia Heubach), “Rises, Levels, Drops and Plus Signs in Compositions: Extensions of a Paper by Alladi and Hogatt,” 32nd Southeast International Conference on Combinatorics, Graph Theory and Computing, Louisiana State University, February 2001.

Jeffery J. Leader (with Bill May), “The Zero-Crossing Phase-Lock Loop: Results from Discrete Dynamical Theory,” SIAM Dynamical Systems Conference, May 2001.

Tanya Leise, “A Shape Memory Alloy Calculus Project,” AMS/MAA Joint Meetings, New Orleans, LA, January 2001.

_____, “Mathematical Models from Psychology,” Spring 2001 Indiana MAA Section Meeting, University of Indianapolis, March 2001.

Jerry Muir, “Unbounded convex mappings of the ball in C^1 ,” AMS/MAA Joint Mathematics Meetings, New Orleans, LA, January 2001.

David Rader, “Optimal cell flipping to minimize channel density in VLSI design and pseudo-Boolean optimization” Trinity University, San Antonio, TX and University of Richmond, Richmond, VA.

Gary Sherman, “Cwatsets,” Mini-course at the National Mathematics Meetings, New Orleans, LA, January 2001.

Rose Mathematics Seminar (organizer Roger Lautzenheiser)

Kurt Bryan, “A Nonlinear PDE Arising in Thermal Nondestructive Testing” and
“Singular Solutions to a Partial Differential Equation Arising in Corrosion Modeling”

Aaron Klebanoff, “Pi in the Mandelbrot Set” and “Why Chaos Toys are Chaotic”

Tanya Leise, “Mathematical Models of Shape Memory Alloys”

John Rickert, “Elliptic Curve Cryptography” (3 talks)

Gary Sherman, “Cwatsets”

Yosi Shibberu, “Partial Least Squares Analysis”

Ralph Wojtowicz, “Mathematical Modeling with Categories”

PAPERS, PUBLICATIONS AND TECHNICAL REPORTS

Papers and Publications:

Allen Broughton (with Dawn M. Haney, Lori T. McKeough, Brandy M. Smith), “Divisible Tilings in the Hyperbolic Plane,” *New York Journal of Mathematics* 6 (2000), 237-283.

_____, “Constructing Kaleidoscopic Tiling Polygons in the Hyperbolic Plane,” *American Math. Monthly*, October, 2000.

Steve Carlson, *Topology of Surfaces, Knots, and Manifolds: A First Undergraduate Course*, John Wiley & Sons.

_____, “Self-Complementary Graphs,” in *Proofs Without Words II* by Roger B. Nelsen, Mathematical Association of America.

David Finn, “Can a bicycle create a unicycle track (other than a single straight track)?,” submitted to the *College Math Journal*.

LeRoy A. Franklin (with Belva J. Cooley), “Improving Quality Through the Use of Binary Logistic” *Proceedings of the National Decision Sciences Institute*, November 2000.

_____ (with Belva J. Cooley), “An Experiential Approach to Integrating ANOVA Concepts,” submitted to *Journal of Statistical*.

Ralph Grimaldi, “Compositions with Odd Summands” *Congressus Numerantium*, December 2000.

_____, “Compositions Without the Summand 1,” submitted to *Congressus Numerantium*.

_____ (with Phyllis Z. Chinn and Silvia Heubach), “The Frequency of Summands of a Particular Size in Palindromic Compositions,” submitted to *Ars Combinatoria*.

_____ (with Phyllis Z. Chinn and Silvia Heubach), “Rises, Levels, Drops and Plus Signs in Compositions: Extensions of a Paper by Alladi and Hogatt,” submitted to *The Fibonacci Quarterly*.

Jeffery J. Leader (with Bill May), “The Zero-Crossing Phase-Lock Loop: Results from Discrete Dynamical Theory,” *Applied Math. Letters*.

Tanya Leise (with Jay R. Walton), “A general method for solving dynamically accelerating multiple co-linear cracks,” accepted in *International Journal of Fracture*.

_____ (with David Finn), “Organizing an undergraduate math conference,” *MAA Focus*, January 2001.

_____ (with Andrew Cohen), "A few mathematical models and metaphors from psychology," submitted to *American Mathematical Monthly*.

Robert Lopez, *Advanced Engineering Mathematics*, Addison Wesley.

Jerry Muir (with Ted Suffridge), "Unbounded convex mappings of the ball in C^2 ," to appear in *Proceedings of the American Mathematical Society*.

David Rader, "Maximally Disjoint Solutions to the Set Covering Problem," *Journal of Heuristics*.

Mathematical Sciences Technical Report Series:

MSTR 00-05 "Classification of Cwatsets Through Order 23": Ben Goodwin, Dennis Lin

MSTR 00-09 "Lengths of Systoles on Tileable Hyperbolic Surfaces": Kevin Woods.

MSTR 00-10 "Separability of Tilings": Nick Baeth, Jason Deblois, Lisa Powell

MSTR 01-01 "Triangular Surface Tiling Groups for Low Genus": S. Allen Broughton, Robert M. Dirks, Maria T. Slougher, C. Ryan Vinroot .

The Rose-Hulman Undergraduate Mathematics (Electronic) Journal

Since its initial issue in March 2000, there have been two more issues published. There were 3 papers in the Fall, 2000 issue and also 3 papers in the Spring, 2001 issue. The journal has received many favorable comments and may be viewed at <http://www.rose-hulman.edu/mathjournal/>.

PROGRAMS and CONFERENCES (more details of programs in various locations above)

The **35th Annual Rose-Hulman Mathematics Competition** was held in November. Approximately 400 high school students were in attendance. It was co-organized, by **Ralph Grimaldi** and **John Rickert** with assistance from other mathematics faculty.

The **18th Annual RHIT Undergraduate Mathematics Conference**, organized by **David Finn** and **Tanya Leise**, was quite successful. Over eighty participants came to listen to and/or present papers. The Undergraduate Conference is one of a handful of Conferences in the country that is completely devoted to student speakers, except for the invited speakers. The guest speakers this year were Dr. Suzanne Lenhart and Dr. Linda Petzold.

The **Fast Track Calculus** program this year attracted a large number of applicants, and again this accelerated first year mathematics experience is expected to be attended by some of the best and brightest incoming Rose-Hulman freshmen. Professors **Elton Graves** and **Roger Lautzenheiser** will be teaching in this summer's program, which begins in July.

