



GENERAL ENGINEERING NEWSLETTER

Department of General Engineering, University of Illinois at Urbana-Champaign

VOLUME 28, NUMBER 1

FALL 1985

GE Alumni Attend Annual Fall Meeting, Seek Program Funds

The General Engineering Constituent Alumni Association held its annual Fall meeting on Saturday, Oct. 5 and attended a mini-seminar on CAD-CAM choice and operation conducted by Profs. Michael Pleck and Thomas R. Woodley.

A highlight of the registration-hospitality hour was the presentation of plaques and \$500 checks to three faculty members who have won the Gamma Epsilon good teaching awards. Recipients were Prof. L. D. Metz, the 1983 winner; Prof. E. N. Kuznetsov, 1984; and Prof. Louis Wozniak, 1985.

The alumni group had voted at their Spring board meeting to award \$500 to the Outstanding Professor in GE beginning in Spring '86. They also voted to present checks retroactively to the previous winners.

At the business meeting following the CAD/CAM demonstration, Alumni President David Burge, '66, reported on several items under consideration. He mentioned the long range study to establish a G.E. doctoral program and the possibility of forming an advisory committee to the department.

The group voted to approve a "sale" of identification badges to raise funds for the association. For a \$50 contribution, an attractive badge containing the name of the alumnus and the department would be given. A mailing will be prepared for each alumnus explaining the program.

President Burge said the group would continue to present the outstanding professor award. Also he reported that GE leads the U.I. Alumni Association in the percentage of members who are life members.

Constituent Alumni Board Representative Gary Allie, '69, asked those in attendance for guidance on the divestiture of South African investments which is to be considered in the near future by the A.A. board of directors. After some discussion it was voted that business and economic decisions should be made on their own merits and not be based on politics.

The meeting was followed by a buffet luncheon at the Illini Union. The group then attended the thrilling 31-28 Illinois victory over Ohio State in Memorial Stadium.

Faculty Wins Again

The GE faculty defeated the students in the annual Strike O'Bryant Bowling tourney. Prof. Dave O'Bryant for whom the event is named again applied his unique rating/scoring system to determine the winners.



Prof. Michael H. Pleck demonstrates the CAD—CAM for visiting alumni. Left to right age, Brad Mottier, '79; Pleck; John Holz, '76; and Bob Devine, '80.

More Than \$1 Million In Grants to Faculty

Faculty members of the Department of General Engineering have received grants and awards totalling more than one million dollars.

Prof. J. V. Medanic is the co-principal investigator of a five-year \$600,000 project in Large Scale Systems Control awarded by the Lawrence Livermore Laboratory to the University of Illinois. The study will perform control systems research related to development of reliable and robust hierarchical control system to meet stabilization, regulation and tracking objectives for directed energy weapons.

Prof. Louis Wozniak is recipient of a two-year \$210,038 grant from the U.S. Bureau of Reclamation for Optimal Digital Speed Control of Hydroelectrical Generators. The proposed research will replace the present circuitry by substituting a microcomputer and devising new control techniques.

Dr. Wozniak will program the present three term controller on a microcomputer and substitute it for present hardware. Then the control will be programmed for gains' optimal settings at every load point. He then plans to design and implement an optimal digital control algorithm for full speed control. Finally the controller will be tested on a hydrogenerator.

Profs. Michael H. Pleck and Thomas R. Woodley have received second year funding for the Excellence in Computer-aided Education and Learning (EXCEL) grant program.

Year two activity includes renovation and equipping 305 Trans. Bldg. as a 100-seat auditorium for Micro-



There are so many things happening on the engineering campus it is difficult to know where to start. As far as the Department of General Engineering, we have made great progress in the last few years. First of all, the Master's Degree Program has been an unqualified success. The graduates have done extremely well in industry and several have gone on for a Ph.D.

The M.S. degree has been approved by the University to be offered on an off-campus basis. We are waiting for the final bureaucratic approval by the Illinois Board of Higher Education. Several of the courses have been offered on the Electronic Blackboard with good enrollment. Plans are being made to proceed with the implementation of a Ph.D. in Engineering Design and Systems Engineering.

The new project EXCEL funded by IBM is revolutionizing the way we teach engineering graphics. Professors Michael Pleck and Thomas Woodley have developed new methodologies that are receiving national recognition.

All of the G.E. Design courses have introduced new computer techniques in computer-aided design. The use of the IBM 4341 has enabled the use of finite element analysis techniques to be used over a wide range of applications including the solving of some of the project design problems.

During the last few months, several of the faculty in General Engineering have been awarded research grants amounting to over \$700,000. Many other proposals are pending review.

I would like to thank the General Engineering Alumni Association for the fine work the officers have done in reactivating the organization. It is extremely important for the faculty to keep in touch with our graduates. I would urge all of you to become more involved with the programs of the G.E. alumni. Let us know what kinds of programs and activities would be of greatest interest to you. We are always anxious to hear from you and welcome on-campus visits. As they say in the South, "Y'all come!"

Jerry S. Dobrovolny, P.E., Professor and Head
Department of General Engineering

Prof. Mark W. Spong will receive \$13,399 from the UI Research Board and the Coordinated Science Laboratory for development of a microprocessor based real-time controller for the Stanford manipulator.

Working with a graduate student, Rodney Kindler, he will build a microprocessor interface to control the two Stanford manipulators which will be located in the Coordinated Science Laboratory.

Faculty Grants. . .

CADD lectures and demonstrations. A significant feature of the hall is a high quality, large screen projection monitor for the color display of interactive computer graphics images simultaneously appearing at a lecture workstation. The use of this facility together with 50 hours per week of microcomputer lab operation enable 16 sections of GE 103 students to receive EDG instruction in the new format.

A "gateway" microcomputer will be acquired to link to local-area network of the Micro-CADD lab to other campus computers. Nine of the lab's early microcomputers have been replaced with newer IBM PC-AT/99s, matching those obtained the first year. All microcomputers will receive memory capacity expansions. Also all lab graphics workstations will be upgraded to medium resolution color graphics capability, replacing the present amber-only monitor.

Software development funds are being applied to several areas: creation of an interactive, menu-driven operating environment to replace the user interface to IBM DOS; creation and adaptation of software to improve the efficiency and effectiveness of workstation grading and grade reporting of student assignments; development of innovative Micro-CADD lecture-demonstration and assignment materials for engineering design graphics and use of the gateway computer.

Prof. M. H. Moeinzadeh has been awarded two grants totalling \$95,511 for his work with human joint structures.

A two-year grant from Whitaker Foundation awards \$88,011 for three-dimensional dynamic modeling of human joint structures with application to the knee joint.

Funding from the UI Bioengineering Research Board awards \$7,530 for three studies: determination of canine body segment parameters (joint study with the Department of Veterinary Medicine and Biosciences); biomedical force analysis of leg motion for bicycle pedalling (with **Prof. L. D. Metz**); and development of a new technique for the determination of the body segment parameters utilizing computer axial tomography and computer aided design procedures (with **Prof. Scott Burns**).

Prof. Edward N. Kuznetsov receives \$27,374 from Cal Tech/NASA for Structural Implementation of a Reflector Antenna with Statically Controlled Shape.

The concept employs the inherent shapelessness and Kinematic mobility of a wire mesh which is an under-constrained structural system. The desired geometric configuration of the mesh (paraboloid of revolution) is attained and controlled by applying and monitoring an appropriate external force field.

Prof. Thomas F. Conry was granted a \$19,980 extension by the National Science Foundation for the study of Thermal Effects in Traction in Elastohydrodynamic Lubrication.

The funds will support the development of a finite element program to predict the temperature changes and lubricant traction (friction) in concentrated contacts such as are found in ball bearings and gears.

The extension grant is to be used to run these programs on a supercomputer. The CYBER 205 at Purdue is being used for this purpose.

Tamara Ross Wins Elizabeth Ruff Award

Tamara Leigh Ross, Urbana, was awarded the first Elizabeth Ruff award at the Annual Awards Banquet last Spring. Her faculty advisor is **Prof. Morris Sheinman**.

The award was established by Mrs. Marie Ruff, Chicago, in memory of her daughter, Elizabeth, a 1983 graduate of the department. She was killed in a auto accident in July, 1983.

Winners of the award will be chosen annually from sophomore or junior women in General Engineering with at least a 3.75 GPA. Selection also will be based on personal traits of sincerity, unpretentiousness, gentleness, amiability, helpfulness, cooperation, consideration and supportive nature.



Tamara Ross (right, front) is the first recipient of the Elizabeth Ruff award. Also pictured are: (left, front) Claire Ruff, sister of the late Elizabeth Ruff; (L to R, back row), Prof. Louis Wozniak, Mr. and Mrs. Clairemont Ruff and Jerry S. Dobrovolny, head, Department of General Engineering.

High School Students Learn About Engineering

JETS, Junior Engineering Technical Society, is a national non-profit organization that promotes interest in engineering, technology and science among talented high school students. It sponsors summer sessions at three Illinois locations, supports the National Engineering Aptitude Search test, and conducts other motivational and guidance activities.

The two-week summer programs orient students to college courses in engineering, mathematics, library research, computer science, and lectures.

The National Engineering Aptitude Search test, sponsored by JETS, was given to 694 high school students at 43 locations in Illinois this year. This test, developed by the American College Testing Service, is designed to indicate aptitude for engineering study.

The First Annual JETS Engineering Research Day is being planned for November 8, 1985. Members of high school JETS chapters in east-central Illinois are being invited to UIUC to receive presentations from various departments, giving them insight into current research being conducted in the College of Engineering.

Professor David C. O'Bryant of General Engineering is state JETS director, and **Jonathan N. Horner** is state coordinator. JETS is supported by the country's leading engineering employers.

ISGE Elects Officers

The Illinois Society of General Engineers has elected officers for 1985-86.

They are: President, David Reid, Huntley; Vice President, Ellen M. Sedlacek, Naperville; Treasurer, Robert

J. Matson, Jr., Hampshire; Engineering Open House Chairman, Annette G. Drilling, Northbrook; and Engineering Council Representative, Roman Kuris, Schaumburg.

Profs. Wayne J. Davis and **W. Brent Hall** are faculty advisors.

Gamma Epsilon Announces New Officers, Initiates

Janice Mueller, Cary, has been elected president of Gamma Epsilon honor society of General Engineering for 1985-86.

Other officers include Vice President, Bob Link, Lake Villa; Secretary, Dina Lee Sheathelm, Carlyle; Treasurer, Laurel E. Pine, Deerfield; and Engineering Council Representative, Robert D. Flanigan, Downers Grove.

Prof. Harrison Streeter is faculty advisor.

Spring initiates include: Mark A. Anliker, Villa Grove; Mun Young Choi, Lincolnwood; Stacey R. Ericksen, Chatham; Robert D. Flanigan, Downers Grove; Matthew A. King, Bloomington; Kurt L. Koenig, Oak Park; Mark A. Krull, Decatur; Geriberto C. Manaca, Skokie; Michael R. Murphy, Orland Park; Joan L. Olson, Oneida; Laurel Ellyn Pine, Deerfield; Anthony L. Schaff, Nashville; Ruta R. Sidrys, Streator; David N. Slowinski, Chicago; and Timothy S. Solarz, Cary.

Lincoln Arc Welding Cites 5 GE Students

Five General Engineering students have received cash awards in the 1985 Student Engineering Design Competition of the Lincoln Arc Welding Foundation.

Gerald J. Close, Kankakee, and Scott Farnham, Springfield, each received a \$125 cash grant as a merit award. R. Patterson Harmet, Southgate, Mi., Warren A. James, Winnetka, and Bradley G. Lane, Downers Grove, shared a third \$125 prize.

The annual awards recognize student achievements in the design, engineering or fabrication of welded manufactured products, structures or related research.

In addition to the check, students receive a certificate of award and a medallion pin.

Engineering Open House

"Searching for Solutions" is the theme of this year's Engineering Open House to be held March 7 and 8, 1986.

The event sponsored by Engineering Council is the second largest student-run event at the University of Illinois. Only Homecoming is larger in scope. All departments are already hard at work to make EOH '86 a success.

The General Engineering department effort is being revitalized by this year's student directors, Illinois Society of General Engineer's Annette Drilling, Northbrook, and Gamma Epsilon's Joel Lehman, Wheaton.

Planned exhibits include the CAD/CAM facilities, faculty and graduate research, senior projects and student and industrial displays. Emphasis will be placed on hands-on and audience participation exhibits.

All college exhibits will be active 9 a.m. - 4 p.m., Friday, March 7; and 9 a.m. - 3 p.m., Saturday, March 8. Predicted attendance is over 20,000. Plan now to visit this entirely student-run event.

Faculty Notes

Prof. David O'Bryant who was formerly assistant head of the department of General Engineering now has the title of associate head.

Assistant Prof. Osman Coskunoglu and **Lecturer Thomas R. Woodley** both have been promoted to associate professors.

Prof. W. Brent Hall presented a paper entitled "Pro- of Loads Effects on Reliability of Existing Structures" at the Structural Engineering Congress '85, Sept. 16-18, in Chicago.

Prof. Louis Wozniak and his graduate student, **Joe Jaeger** (MS '85) presented a paper "Maximum Slew Controller Rate for Hydro-Generator" at Waterpower '85, Sept. 5-7, in Las Vegas.

Prof. Mark Spong was a visiting professor this summer at University of Waterloo, Ontario. He presented a series of lectures on "Robot Dynamics and Controls." Last March he was a member of the program committee for the IEEE International Conference on Robotics and Automation in St. Louis. He presented two papers: "Invariant Manifolds and Their Application to Robot Manipulators with Flexible Joints" and "Robust Linear Compensator Design for Nonlinear Robotic Control."

Prof. Spong also attended the 7th International Symposium on the Mathematical Theory of Networks and Systems in Stockholm, Sweden. He gave a paper "Robust Control of Nonlinear Systems."

In June he attended the American Control Conference and presented a paper, "A Slow Manifold Approach to Feedback Control of Nonlinear Flexible System."

Prof. M. H. Moeinzadeh was co-author of a paper presented at the 13th Annual Conference of the Veterinary Orthopedics Society, Feb. 24-March 2, at Salt Lake City.

He also presented papers at the 93rd Annual Conference of the American Society for Engineering Education, June 16-20, at Georgia Tech, and at the 14th International Conference on Medical and Biological Engineering and 7th International Conference on Medical Physics, Helsinki University of Technology, Finland, Aug. 11-16.

Wu Zhuong-he, Chengdu, Sichuan, Peoples' Republic of China, is a Visiting Scholar in the Department of General Engineering for the 1985-86 Academic Year. He is a computer software engineer with the Sichuan Petroleum Designing Institute.

Prof. Osman Coskunoglu has been conducting research on the application of artificial intelligence techniques to the optimization problems that arise in engineering design and management. In April 1985, he presented a paper, "Applying the Planning Techniques of Artificial Intelligence to OR/MS Modeling," at TIMS/ORSA Joint National Meeting in Boston. He will present "Knowledge Based Dynamic Programming" at the ORSA/TIMS Joint National in Atlanta in November, 1985. At the same conference he will serve as a session chairman.

Dr. Coskunoglu also is continuing his research on developing a Decision Support System for the US Army's facilities renewal related activities. He spent Summer '85 with the Office of Chief Engineer in Washington, D.C. He completed two conference papers, coauthored by his graduate student, Suzette LeBlanc, and three technical reports. The papers entitled "Integrated vs.

Integrator Software for Microcomputer Bared DSS" and "Microcomputer Bared DSS for Tactical and Operational Planning" were prepared for the meetings in Boston and Atlanta.



Recipients of the Gamma Epsilon Good Teaching Award receive plaques from GE Alumni President David Burch, '66. Left to right are, Profs. E.N. Kuznetsov, Louis Wozniak, L.D. Metz and Burch. The three faculty members are the first three annual winners of the honor.

Prof. Wayne J. Davis will begin a sabbatical leave with the Spring Semester which will extend during the summer. Next semester will be spent at the Automated Manufacturing Research Facility (AMRF) with the National Bureau of Standards at Gaithersburg, Md. During research years, Prof. Davis has been involved in the development of a conceptual hierarchy for production scheduling and control of integrated manufacturing facilities.

Under a Department of Energy research grant his research has been primarily dedicated to steel producing facilities. Working at AMRF provides an unparalleled opportunity to apply his findings in laboratory setting. His research will include both algorithmic development as well as implementing the procedures on a collection of computer aided manufacturing equipment in real time production.

Davis' plans for the summer are still pending. Potential opportunities include remaining at AMRF, collecting essential production data at a steel company, working at the CIDMAC center at Purdue University or performing developmental research in hierarchical decision-making at the University of Arizona.

As UIUC representative, **Mary Bea Walker**, Director of the Office of Continuing Engineering Education and Assistant Professor of Continuing Education in General Engineering will attend the annual meeting of the Association for Media-Based Continuing Education for Engineers, Inc. (AMCEE). The organization is composed of 28 of the nation's leading engineering universities supplying continuing professional development to practicing engineers by videotape. Currently AMCEE offers more than 500 videotape courses in 17 disciplines.

Developing New Method for Testing Wire Rope

Prof. Henrique L.M. dos Reis and his graduate student, Michael McFarland of Hoopston, Il., are investigating a nondestructive method to test damaged wire ropes to predict their residual strength and remaining usefulness. The study is supported by NASA Lewis Research Center.

Wire rope is a complex structural element consisting of twisted elements such as filaments and strands in various constructions. Wire rope is common in applications such as ship mooring, vehicular towing, suspension bridges and mining just to mention a few. Failure of a wire rope can result in significant property damage and/or personal injury.

Because wire rope can fail with no quantifiable change in visual appearance, the development of non-destructive testing evaluation (NDE) techniques is essential in improving the safety and reliability of operations involving wire ropes.

Various NDE techniques currently practiced include visual inspection, acoustic emission, radiographic examinations and electromagnetic methods. All these procedures have drawbacks due either to inaccuracy as in visual inspections or economic as in radiographic examinations. Furthermore, while these methods can detect broken wires they do not evaluate the residual strength or the remaining useful life of a used rope.

McFarland is pictured examining a rope specimen that has been subjected to damage by submitting it to 1.250×10^6 fatigue cycles. This specimen showed 47 broken wires on the outside surface.

Prof. Reis' nondestructive testing method is in the process of being implemented in a commercially available testing device.

Study Road Maintenance to Deter Damage, Costs

Profs. Wayne Davis and **James Carnahan** are studying a decision-support system to schedule maintenance for road pavements.

The Construction Engineering Research Laboratory (CERL) has a program to collect pavement condition data from armed forces bases. They will use this information to indicate an optimal course of action to the decision-maker in charge of facilities maintenance.

Graduate students Paul Keane and Marion Wu worked with Davis and Carnahan to develop models for pavement deterioration based on the pavement surveys which CERL collects. By using these models in conjunction with certain lost data, a sequence of maintenance actions can be identified which will meet road condition objectives while incurring the minimum expected cost.

A simulation model was developed to test the robustness of this sequence of maintenance actions. The additional cost of delaying the enactment of the optimal maintenance sequence is being examined. Strategies are being devised for years when the allocated funds are less than the amount required by the optimal maintenance program. An example computation has been performed using actual data on pavement condition and maintenance cost provided as collected from armed forces bases by CERL. Currently, it is CERL's objective to integrate this methodology into PAVER, a pavement management system developed by CERL.

List GE Teaching, Research Assistants

There are 20 teaching or research assistants in the department of General Engineering for the fall semester.

They are:

Teaching Assistants: Terry W. Anderson, Catlin; David L. Beetz, Colfax; Ronald J. Borre, Northbrook; Edward J. Dougherty, Arlington Heights; Matthew F. Fonck, Wilmington; John D. Gardiner, Peoria; Matthew L. Grisey, Independence, O.; Lawrence Kaplan, Warrenville; L. J. Lavering-Gesell, Seattle, Wa.; William J. Lenzi, Kinkaid; D. Michael McFarland, Hoopston; Brett K. Stovall, Elmwood; and Daniel E. Williams, Ellsworth.

Research Assistants: Mary Ann Bitz, Steger; Robert B. Goldman, Morton Grove; Paul L. Keane, Mt. Prospect; Chris R. Rieger, Chatsworth; Paul H. Verstrate, Chicago; and Marion I-Min Wu, East Lansing, Mi.

Also Jeffrey R. Powell is working as a laboratory assistant.

Announce Recipients of Chittenden Award

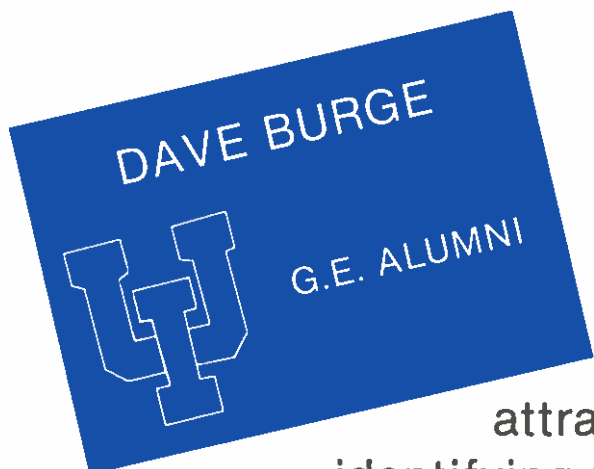
Two graduates of the Master of Science Program in General Engineering were the first recipients of the William A. Chittenden Award at the Department Honors Banquet last April. **Bernard L. Cyr**, B.S. '81, M.S. '83, and **John B. Holz**, B.S. '76, M.S. '81, were named in recognition of their demonstrated high quality scholarship, research accomplishments, and professional promise.

The awards are made possible through the generosity of **William A. Chittenden**, '50, who has had an outstanding career with Sargent and Lundy, Engineers in Chicago. Beginning as a mechanical engineer, he moved up as project manager, project director, then manager of the Mechanical Engineering Department. In 1977 he was named Director of Engineering and currently is Director of Services. Bill has had responsibility for the design and construction of many power plants, both fossil-fueled and nuclear, and he was one of the pioneers in the development of design procedures for nuclear power plants. He is a fellow of both the American Nuclear Society and the American Society of Mechanical Engineers, has authored several technical articles, and has served in positions of responsibility in many professional organizations. In 1978 he received the Gamma Epsilon Distinguished Alumnus Award from our Department.

The Department awards committee was charged with the responsibility of formulating the criteria for the Chittenden Award. It was their conclusion that it should be given to recognize potential excellence in the practice of engineering as exemplified by the donor, Bill Chittenden.

Further directions for research include refinement of the deterioration model and a study of the allocation of a total budget for maintenance of various subsystems comprising the overall system.

HAVE WE GOT A DEAL FOR YOU!!



Donate \$50 to the
General Engineering
Constituent Alumni Association
And you will receive this
attractive blue and orange name badge
identifying you as a General Engineering alumnus

GET INVOLVED—HELP US SERVE YOU BETTER

Alumni Funds will be used for:

- Distinguished faculty awards
- Scholarships
- Faculty Travel
- Alumni Newsletter
- And new services
as adopted

SPECIAL REMINDER: Many firms have a matching fund program whereby they will match your donation. Check with your company to see if you can further benefit the GE Alumni Assoc. by doubling or even tripling your gift.

Donations are tax deductible—So act before Jan. 1

- Yes, I want to express my Illinois Loyalty. Here's my \$50 donation.

SEND MY IDENTIFICATION BADGE TO:

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Name to be printed on badge: _____

Are you a member of the GE Alumni Assoc.? _____

- Here's another \$11 for a one-year membership
- My employer will match this gift. Enclosed is my firm's Matching Gift Form.

Mail to: GE Alumni Association, 117 Transportation Building, 104 S. Matthews, Urbana, IL 61801

At the ASEE/IEEE sponsored Frontiers in Education Conference in Golden, Col., in mid-October, Walker presented a paper, "Time and Sessions Spent in On-the-Job Problem Solving for 57 Practicing Engineers." Her research was supported in part by a grant from the American Society for Civil Engineers.

In November, Walker will present a paper on continuing education delivery systems at the national conference of the American Association for Adult and Continuing Education in Milwaukee. The paper is co-authored by Dr. J. F. Donaldson, head, Extramural Courses, UIUC.

Walker has co-authored an invited article for the 1985 *Compendium: Uses of Instructional Television in Engineering Education in the U.S.* The compendium is a publication of the American Society for Engineering Education.

Alten Grandt Named to Purdue U. Post

Dr. Alten F. Grandt, Jr., '68, has been appointed head of the School of Aeronautics and Astronautics, Purdue University.

He received his bachelor's degree with highest honors in General Engineering. He also earned his M.S. in 1969 and Ph.D. (TAM) in 1971 at Illinois.

Grandt is an authority on damage tolerance and durability of structural materials. He is author or coauthor of more than 40 technical papers.

He won the Hentenyi Award from the Society for Experimental Stress Analysis in 1981 and the C.J. Cleary Award from the Air Force Materials Laboratory in 1974. He has won four Scientific Achievement Awards from the Air Force Systems Command and the Air Force Science and Engineering Award.

From 1971-79, Grandt was a materials research engineer with the Air Force Materials Laboratory at Wright-Patterson Air Force Base. He directed research on fatigue and fracture of aerospace materials.

He joined the Purdue faculty in 1979 as an associate professor and was made professor in 1983.

Distinguished Alumni Award

Kacalieff Honored as Distinguished Alumnus

Christ D. Kacalieff, President, Chris Kaye Plastics Corp., St. Louis, received the 1985 Gamma Epsilon Distinguished Alumni Award at the annual Honors Banquet on April 25.

He was the 12th annual winner of the prestigious award.

Kacalieff received his B.S. degree in General Engineering in 1944. He resides in Frontenac, Mo.

He became interested in plastics when he worked with Prof. W.N. Findley in the Department of Theoretical and Applied Mechanics in 1943-44.

Kacalieff is chairman of the 1985-86 annual College of Engineering Fund Drive.

Indy Racing Car Chassis Under Study By GE Faculty Team

Using the Department of General Engineering IBM 4341 CAD/CAM system, Profs. Scott A. Burns and L. Daniel Metz are studying the stress and deformation properties of monocoque racing car chassis. The IBM system allows the rapid development of a finite element model from the geometry of the object involved.

This is important to the study because the shape of the racing car chassis is complex and subtly contoured in numerous locations. In the photograph Professor Metz is seen making a profile template of one section of the chassis. Similar templates were developed for profiles every 6 inches along the entire length of the chassis.

These profiles were photographically reduced and traced, using the mouse and pad capability of the IBM system, and entered into the computer. The 17 profiles thus developed form a basis for the "skinning over" of the entire chassis by the CAEDS/IBM program which then has the openings for cockpit, suspension members, fuel filling, etc. cut into it.

In their initial work, Burns and Metz plan to calculate stresses associated with certain common kinds of racing accidents, such as a contact with a wall which forces the front suspension into the side of the chassis. The first version of their work will necessarily be simplified by assuming that the finite element computer model of the chassis consists of an isentropic, homogeneous material. Later versions may attempt to incorporate the actual construction of the chassis itself, which consists of an aluminum hexagonal honeycomb, covered by 18 layers of carbon fibers on the outside and kevlar on the inside. Such an orthotropic material poses severe difficulties when using the finite element method.



The chassis pictured is that of Roberto Guerrero, who was the third place finisher (in this chassis) at the 1985 Indianapolis 500 Mile Race.

Alumni Notes

1934 William L. Rayner was killed May 9, 1985, in an ultra-light plane accident.

1940 Norman G. Bitterman, M.S., Industrial Management and Economics, U.I. '42, is operating a tree farm in Middlesex, Vt. He served as Executive Director of Illinois State Regional Economic Planning and Development Agency, 1948-51.

1949 Robert H. Coyle is president of the R. M. Coyle Co., Peoria. He recently retired after 35 years as sales manager, General Offices of Caterpillar and opened an independent insurance agency.

1958 Max L. Whitman, M. Pub. Adm., '71, Roosevelt U. is director of public works and village engineer for the Village of Winnetka, Il.

1960 John R. Green, MBA '73, Wayne State U., S.M., Industrial Management '75, MIT, has been appointed president and chief operating officer of Magic Chef, Inc. Green received the 1983 Gamma Epsilon Distinguished Alumnus Award. He is a resident of Lake Forest, Il.

Melvin F. Jager, Ll. B '62, U.I., was named Jan. '85 Alum of the month by the College of Law. Jager who has had an active career in patent, trademark and copyright law is with the legal firm of Niro, Jager and Scavone, Ltd., Chicago. He resides in Glen Ellyn, Il.

David A. Weaver, '61, PE, recently accepted the position of County Superintendent of Highways for Stephenson County. He has been serving as president of the Kankakee Area Chapter for Professional Engineers but due to his appointment, has resigned.

1965 Gerald Ray Schoonhoven, MBA '67, Harvard has become a partner in Dongery, Jones and Wilder of Mt. View, Ca. The firm, which invests \$86 million pool in venture capital opportunities, is opening a new Silicon Valley office.

1966 Donald B. Johnston, MBA '85, U. of Chicago, has been named Director of Administration—Commercial Products of Rockwell Graphics Systems, a division of Rockwell International, Chicago. He and his wife, Susan Lashbrook Johnston, B.S. (Elem. Ed.) '67, reside in LaGrange, Il.

Lois Backer Roberts is owner of Lois B. Roberts, P.E. Consulting Engineers, Westport, Ct. The firm specializes in design of mechanical, electrical and fire protection systems for commercial and institutional buildings. Roberts was just elected vice president of Connecticut Engineers in Private Practice.

1967 Michael Dinitz, MBA '71, Northwestern is Director of Operations at Medline Industries/Dynalor Division, Mundelein, Il.

Wayne A. Weber, MBA '68, Purdue, has moved from Topeka, Ks., to Mechanicsburg, Pa. He has been named Director of Engineering and Power Supply of the Allegheny Electric Cooperative, Inc., Harrisburg, Pa.

1968 Donald C. Bishop, MBA '74, LSU, is a realtor-broker with Realty World—Randy Wright Co. of Plano, Tx. This spring he was in Korea for three weeks as part of a Navy Research Program.

John E. Collins, MS Int. Ed. '65, BYU, has moved from Draper, UT. to Gilbert, Az. He is General Manager of the East Valley Development of Mesa, Az.

George P. Friedrichs has become Manager-Marketing Support of Control Components, Inc., Irvine, Ca. He formerly lived at Marshalltown, Ia., but is now making his home at Laguna Niguel, Ca.

1970 Stephen Z. Weiss, JD, DePaul, is owner of a McDonald's Restaurant in Chicago. He previously was employed as Patent Counsel by Signode Corp., Glenview. He resides in Highland Park, Il.

1972 Louis Joseph Mancini, Pleasant Hill, Ca., has been appointed Director of Maintenance Analysis and Research of United Airlines at the San Francisco International Airport.

1973 James Richard Mason, MD '77, Buffalo Grove, has been elected to a fellowship in the American College of Cardiology. He is an assistant professor at Loyola University of Chicago Stritch School of Medicine and is affiliated with Alexian Brothers Hospital in Elk Grove.

Karl J. Schaulin is the new plant manager of Proctor and Gamble Mfg. Co., Chicago. He started with the company in 1973 as a project engineer and has held various positions in manufacturing management. He, his wife, Karrin, and three children have moved from Jackson, Tn., to Palatine, Il.

Ralph J. Wagner, MS (SanE) '73, MBA SUNY, has been promoted to marketing manager of Automotive Chemical Group, Nalco Chemical Co., Oak Brook, Il.

1974 Stan G. Gotschall has been named supervisor, Facilities Engineering, Sperry Corp. Aerospace and Marine Group, Phoenix, Az.

John B. Reat, MBA '76, is manager-product marketing of McDonnell Douglas Electronic Data Interchange Systems Co., Hazelwood, Mo.

1975 Gregory P. Konneker, Danbury, Ct., was married on February 23.

David H. Smith has moved from Philadelphia to Chicago. A new son was born on May 31.

1976 Robert C. Braun, Roselle, Il., was promoted to engineering manager in charge of quality control of Duraco Products, Inc., Streamwood, Il. The Brauns welcomed their first child, a daughter, on Aug. 27, 1984.

Jeffrey E. Burgard, Lombard, Il., has been named manager of the design department, UOP Inc., Des Plaines, Il. The firm is licensor of process technology to refineries and petrochemical plants.

Raymond M. Guerin, Dover, De., is the new engineering manager for the Dover operation, General Foods Corp. His responsibilities include engineering, maintenance and the cogeneration facility.

Neal Dean Siegel, Chicago, is sales representative of SMS Publications, Inc., Evanston, Il.

1977 John Baruch and wife, Debra, MD '78, are parents of a daughter at Arlington Heights, Il. He is manager of production and materials planning for Ekco Products Inc., Wheeling, Il.

Linda Chisholm, Oak Park, Il., product manager of ITW Deltar, Frankfort, Il., received her MBA from Governor's State U. in June '85.

James H. Christensen, Buffalo Grove, Il., is senior principal analyst at Baxter-Travenol's Tech Center, Round Lake, Il. He is responsible for personal computer-based engineering software, technical support for four computervision CAD/CAM systems as well as general technical consulting as part of the Engineering Support Center.

Caleb H. Didriksen, JD '82, Tulane, is a member of the Monroe & Lomann law firm of New Orleans. He handles litigation primarily in personal injury, property damage and contracts for local public utilities.

Daniel N. Donahoe, MS(ME) and MBA '83, U. of Santa Clara, has moved to Fountain Hill, Az. He is with Motorola, GEG of Scottsdale, Az.

Erik S. Maseng of Nashua, N.H., is the father of a new daughter. He is a sales engineer with K&H Controls, Inc., Manchester, N.H. The firm serves New England with energy management systems from design engineering to installations.

John A. Metz has moved to Laredo, Tx., from Dubuque, Ia. He has been promoted as supervisor of the John Deere Laredo Proving Grounds.

Mark T. Okuma, JD '84, Northwestern, has moved to Pacific Palisades, Ca. He has joined the law firm, Sheppard, Mullin, Richter and Hampton in Los Angeles.

Samuel Andrew Yee, MBA '83, DePaul, and his wife, Terese, are parents of their first child, a son. Yee is currently a securities research analyst with All-State Insurance Co. in electrical equipment and office equipment industries. They reside in Arlington Heights, Il.

1978 Bradford A. Kroll of Matthews, N.C., recently became a registered PE in North Carolina. He is sales engineer with Ingersoll-Rand, Charlotte, N.C.

1979 Alan B. Croft, MBA '85, Roosevelt U., is a sales representative for Computervision, Itasca, Il. He married Melanie Berg, BS (Marketing) '82, in September '84.

Salvatore V. Giacopelli, Farmington Hills, Mi., has been promoted to supervisor of field performance, Hydra-Matic Div., GM, Ypsilanti, Mi. Giacopelli was married to Helena Schablosky in October '84.

Gary A. Gluck, MA (Business) '85, Cal. St.-Northridge, recently won \$9,000 on the television game show, "Jeopardy." ("I'm donating part of the winnings to the General Engineering department!") He resides in Chatsworth, Ca.

Eileen O'Connell Yahl, O'Fallon, Il., is a mechanical design engineer at Monsanto Co., Sauget, Il.

Rosemarie F. Orehek, MBA '85, U. of Minn., is a technology planner for Northwest Bell, Minneapolis.

Barbara Edstrom Harris, MBA '82, U. of Mich., lives in Wheaton, Il. and is employed by Western Electric. She was married to John Harris in December.

David S. Rosenbaum, MD '83, has accepted a position as cardiology fellow at Massachusetts General

Hospital, Boston. He also will be doing electrophysiology at Harvard Medical School and MIT.

Maripat Klein Sennebogan of Machesney Park, Il. and husband, Neil J. Sennebogen, BS (EE) '79, are parents of a son. She has resigned as production engineer at Woodward Governor Co. (Aircraft Controls Division) where she worked on fuel controls for jet engines.

Ralph T. Wakerly, MBA '82, has accepted a position as marketing manager of Micro Card Technologies, In., Dallas, Tx.

1980 David V. Adams, MS (ME) '83, U. of Ca.—Berkeley, has received Employee of the Quarter Award for R&D at Applied Materials, Inc., Santa Clara, Ca., where he is senior engineer. He recently received an award for a presentation he made at a world-wide conference of engineers and scientists working in applied materials.

David Baumann recently was married to Marilyn Szczepanik in St. Louis. Members of the wedding party included Paul Vestuto '79, Jeff Foy '80, John Aschermann '81 and Tom Sawyer '81. Baumann is a field manager with IBM in San Francisco and lives in Larkspur, Ca.

Susan E. Kenney is employed as project programming manager for IBM in Austin, Tx. She manages a department that provides automation software for a large manufacturing line.

Kurt Muehlbauer is principal engineer with Commonwealth Edison.

Michael A. Osowski is on educational leave from Electro-Motive Division of GMC, completing an MBA from U. of Denver. For the past four years he has been a senior product installation representative for EMD-GMC and has supervised projects in Singapore and Senegal, Africa.

David A. Thompson, MD '85, is a resident at Northwestern University in internal medicine and emergency medicine.

Jody Whitacre Williams has recently joined Ford Aerospace in Sunnyvale, Ca., after four and a half years with Westinghouse Electric Corp. She is engaged in computer system development for the government's remote satellite tracking stations. She resides in Campbell, Ca.

1981 David B. Abel has returned from Saudi Arabia to Hawthorne, Ca. He is a patent engineer with Garrett Industries, Los Angeles.

Peter Collins, MBA, No. Il. U., is project engineer for Illinois Tool Works, Frankfort, Il.

James E. Marshall, Peoria, is a tech staff engineer with Commonwealth Edison Powerton Generating Station, Pekin.

Susan Jane Polka has moved from Denver to Phoenix where she is a civil engineer with the Bureau of Reclamation. Polka is studying for the MBA at University of Phoenix.

Ronald L. Radloff, MS '81, has moved from Newburgh, N.Y., to Cart, N.C. He is manager of Store Systems/MI Quality Assurance for IBM at Raleigh, N.C.

William S. Schaeffer, MCS '85, is a programmer for Duosoft Corp., Savoy, Il.

Gary Richard Steele has been transferred by Union Oil Co. of Ca. from Houston to Schaumburg, Il. He is a project engineer in the marketing technical services department.

Timothy E. Tucker, MS (IE) '83, UIUC, is a senior analyst with Arthur Andersen & Co., Chicago.

1982 **Martha Anderson Alexander** has been named production engineer at American Monitor Corp., Indianapolis, In. She resides in Anderson, In.

Joe L. Brittin is employed as mechanical engineer II by the Illinois Department of Nuclear Safety.

Timothy W. Daly has accepted a position as contract specification engineering with Northrop Aircraft Division, Hawthorne, Ca.

Robert S. Day, Jr., MS (ME) '84, UCLA, is a spacecraft system engineer with Hughes Aircraft Co., Los Angeles.

Bruce Alan Heimerich has been employed as field engineer, Schlumberger Well Services, Lake Charles, La. He also is the father of a new son.

1st Lt. Mary L. Swillum, USAF, has been graduated from the Squadron Officer School at Maxwell Air Force Base, Ala. She has been assigned to Arnold Engineering Development Center, Tn.

David M. Lipari, MBA '84, is a market analyst with Motorola Communications and Electronics Inc., Schaumburg, Il.

Jerriann M. Testin has moved from Plainfield, Il., to Austin, Tx., to accept a position as environmental engineer with Hennington, Durham & Richardson.

1983 **William J. Fox**, Peoria, Il., has received the MBA from Bradley U.

Jordan A. Green has been given greater responsibility in improving the performance and reliability of the James A. Kitzpatrick Nuclear Power Plant (N.Y. Power Authority), Lycoming, N.Y. Recent duties have included being assistant test director for the primary containment integrated leak rate test and performing independent design verification for the multi-million dollar Analog Trip Transmitter System now being installed. He has been accepted as an associate member of the American Nuclear Society.

Edward J. Klinenberg, MBioMedE, '85, Northwestern, has been assigned to Brooks Air Force Base, Tx., after indoctrination at Sheppard AFB. He is technical plans officer for development of plans, studies and directives for three Air Force research and development labs and the AMD Directorate of Systems Acquisition which comprise 1,400 personnel with an annual budget of \$119 million.

Robert A. Mog, MA (Math.) '85, U. of Ala.—Huntsville, is the father of a new son. Mog is an applied mathematician for Science Application, Inc., Huntsville.

Michael C. Okkema, Brookfield, Il., is announcing the birth of a son. Okkema is maintenance supervisor for Reynolds Metals Co., McCook, Il.

Timothy J. Pasternak has accepted a new position as project leader, Package Development Group, Ross Laboratories, Division of Abbott Laboratories, Columbus, Oh.

2nd Lt. Robert J. Schell, Air National Guard, completed indoctrination for medical service officers at Sheppard AFB, Tx. He has been assigned to the Air Force Hospital, Bangor, Me.

Kelly W. Shoemaker, Naperville, Il., has received the MBA from U. of So. Mississippi.

Charles T. Wetherington has moved from Peoria, Il., to Columbia, Tn., where he has accepted a position as process control engineer/quality control supervisor with General Electric. He also is enrolled in the MS (ME) program at Vanderbilt U.

1984 **Kenneth R. Armstrong**, Huntington Beach, Ca., is employed as sales engineer with Johnson Controls, Inc. (Control Products Division), Norwalk, Ca.

Toni Tegtmeyer Baumann, Schaumburg, Il., was married last November to Marty Baumann, '84 Biology. She is employed as product research coordinator by Molex International, Inc., Lisle, Il.

Frederick J. Bell has accepted the position of business manager with Molex International, Inc., Lisle, Il.

Michael J. Burke, Chicago, is sales engineer with Delta Technical Sales, Arlington Heights, Il.

Ervin S. Eiler, formerly of Naperville, Il., now resides in Rochester, Mi. He is in Engineering Systems Development, Electronic Data Systems, Warren, Mi.

Ann Chappell Kinder is an electrical engineer at Edwards AFB, Ca. She was married to William D. Kinder, Aero. Eng. '84, in December. He is stationed at Rocket Propulsion Lab, Edwards AFB. They reside in Palmdale, Ca.

Kevin W. Krak, McHenry, Il., is an engineering analyst supervisor for Mobil Oil Corp., Schaumburg, Il. He supervises eight engineering analysts who handle engineering projects for 2,000 service stations, bulk plants, lubrication plants and terminals across the nation.

Daniel J. Krasinski, MS (EE) '85, Cal. Tech., is living in St. Charles, Il. He is a member of the technical staff at AT&T Bell Laboratories, Naperville, Il.

Bradley G. Lane after seven months as a project engineer with USG Corp., Chicago, has entered the first year of law school at U. of Mich.

Glen T. Mori has accepted a position as sales engineer with Leeds and Northrup Instruments, San Mateo, Ca. He lives in Burlingame, Ca.

Leslie Hilliard Phillips, Lisle, Il., is an application engineer with Johnson Controls, Inc., Naperville, Il. She was married in December to Sean P. Phillips, a pre-pharmacy student at UI-Chicago.

Name Van Valkenburg Engineering Dean

Mac E. Van Valkenburg, who had been serving as Acting Dean of the College of Engineering, was named dean at the April meeting of the U.I. board of trustees.

The Grainger Professor of Electrical and Computer Engineering, Van Valkenburg was named acting dean Aug. 21, 1984, succeeding Daniel C. Drucker.

Dean Van Valkenburg is an internationally known scholar and a member of the National Academy of Engineering. He has been a member of the UI faculty since 1955 except 1966-74 when he was head of electrical engineering at Princeton University.