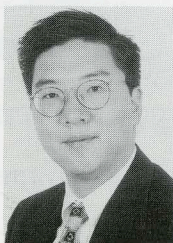


# BRIDGE of Eta Kappa Nu



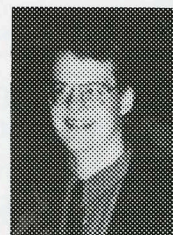
**Phylliss L. Cosentino**  
**1995 Winner**  
**Outstanding Young Electrical Engineer Award**



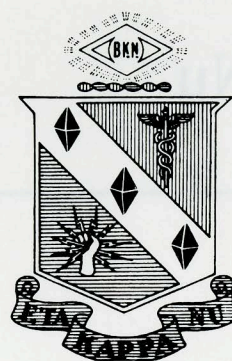
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**Richard C Hsu's**  
**What Every EE Should**  
**Know About Patents**

**Iota Gamma's**  
**Certificate of Merit Report**





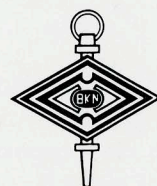


Editor and Business Manager  
J. Robert Betten

May 1996  
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Contributing Editors

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George W. Swenson  
Ralph J. Preiss  
Alan Lefkow



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See Details on Page 3.

## PAUL K. HUDSON HKN DEVELOPMENT FUND ANNUAL CAMPAIGN

Paul K. Hudson  
1916-1988



Eta Kappa Nu Executive Secretary  
and BRIDGE Editor,  
1958-1988

Established by the Board of Directors in April 1992, this important fund will honor the memory of Paul Hudson, a devoted servant of HKN and a man who truly exemplified the qualities that "balance the bridge."

The Hudson fund, managed by the HKN Board of Directors, will be used to support the general development of Eta Kappa Nu. For example, the fund will be used where necessary to help support HKN's national award programs; expansion, including the development of new college chapters and alumni chapters; and chapter visitations by current and past national officers and directors to assist with special occasions. All of these examples represent activities which Paul so heartily endorsed. Other developmental projects will be considered by the Board as funding grows and new objectives important to HKN become established.

As we honor Paul, we also honor donors to the fund by recognizing them as Paul K. Hudson Fellows. Five levels of giving are recognized, as in the form below. One-time donations at any level will be gratefully accepted. In addition, donors may now make pledges for annual donations. All donations will be counted cumulatively for the purpose of establishing the donor's current level of giving. Fellows at each level will be recognized annually by name in the BRIDGE.

Eta Kappa Nu thanks those who have already become Paul K. Hudson Fellows. We invite all members and friends of HKN to join the growing list of Fellows. And whether or not you are presently a Fellow, consider extending your support of the Hudson Fund on an annual basis. Simply fill out and return the form below. Thank you for your part in supporting and strengthening Eta Kappa Nu.

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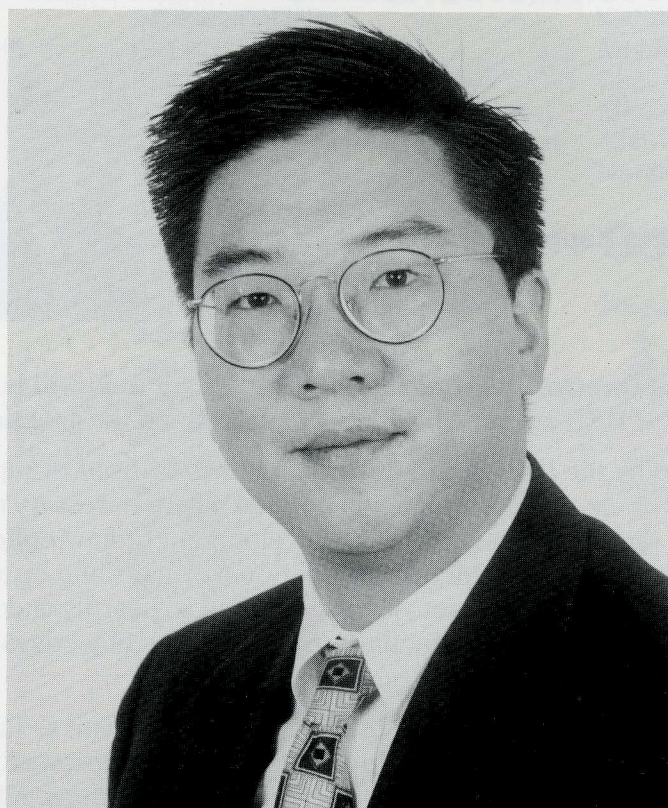
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## What Every Electrical Engineer Should Know About Patents

by Richard C. Hsu\*

### Introduction

Suppose that you are an electrical engineer who has just invented a high-speed computer that is perfect for the Internet. You have formed a small corporation and you are convinced there is a ready market for your invention. You recognize, however, that you are a member of a volatile group in the electronics industry: a new entrepreneurial startup.

The question that enters your mind is whether you should seek legal protection for your invention. You wonder whether it would be worth spending precious startup resources to have your invention patented. For today's high technology companies, many of which would have never even considered such a proposition just several years ago, the answer is a definitive yes.

### Offensive and Defensive Use of Patents

The traditional rationale which would motivate an inventor to obtain a patent is to seek legal protection from a potential infringer. The patent system is designed to, in the words of the Constitution, "promote the progress of Science and the useful Arts" by awarding an exclusive monopoly to an inventor for a limited period of time. A simple historical example that illustrates the importance of a patent system is the choice of material used as the filament of a light bulb. It took Thomas Edison many years and much experimentation to choose tungsten as the ideal filament for the light bulb; yet, if there were no patent system, anyone could have easily copied his result by breaking a bulb and analyzing the wire in it. Thus, patent protection may be used offensively to prevent a competitor from using

patented technology. This could be very important to your company because patents can represent a significant portion of assets and revenues. The patent laws provide that anyone who makes, uses, or sells the invention without your consent can be sued for damages.

Perhaps less noticed, but no less potent, is the defensive use of a patent. For example, even if you don't think you will ever want to enforce a patent against an infringer by litigation or licensing, however improbable, there is another equally critical reason for obtaining a patent. Suppose you start selling your high-speed computer and you are sued for patent infringement. Even if you contest the merits of your opponent's case, you cannot afford not to take such a claim seriously because the stakes are high and the cost of proving or disproving patent infringement can run into the tens or hundreds of thousands of dollars. Lawsuits can take years to resolve and take away valuable management and engineering resources. Furthermore, because ignorance of a patent is no defense, you can unknowingly infringe a patent and still be liable.

If, however, you had the foresight to develop a small patent portfolio and someone either sues or threatens suit, you can use your patents defensively. One way of using your patent is to disprove an accuser's claim that it was the first to conceive of the invention. Another way of using your patent is to counterclaim against your infringer which enhances your negotiating position. Frequently, companies in such situations will cross license patents or settle the case. Thus, the ownership of patent portfolio can be critical in defending against the patent claims of others.

Now that you realize the value of obtaining a patent, how do you go about obtaining one? How much will it cost? How long will it take? These are some of the questions this article will address.

### What Can be Patented?

Under U.S. laws, a patent can be issued to cover any "new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." 35 U.S.C. Sect. 101.

Basically, one can patent any tangible subject matter or, in words of the U.S. Supreme Court, "anything under the sun that is made by man." Examples of what are not patentable include laws of nature, physical phenomena and abstract ideas. A patentable invention need not be a technological milestone, like the Shockley transistor or the Hughes rock drill bit. One can obtain a patent on even a modest improvement in the existing technology as long as the improvement would not be obvious to someone who is skilled in the relevant technology.

### Requirements for Obtaining a Patent

In order to receive the protection of a patent, an invention must be useful, novel and nonobvious.

The first of these requirements, utility, is generally satisfied quite easily. Except in the cases of chemical inventions, the test is more or less perfunctory, requiring nothing more than the suggestion that the invention might have some practical use. For a product to be useful it should at least work, although it does not have to work perfectly or even better than any competing products or processes that might exist. Moreover, there exists a presumption in favor of usefulness, that is to say that an invention is considered useful unless there is some reason to believe that it will not work, like for example, a perpetual motion machine.

The requirement that an invention be novel simply means that the patent applicant must be the first person to invent the subject matter of a patent. Determining whether a product or process is within the patent statute's meaning of "novelty" requires comparing the prior art, which is a collection of any past patents and relevant technical literature, with the subject matter sought to be patented. A product is not considered "novel" if all the elements of that product were disclosed in a single piece of prior art.

The third, and usually the most critical, hurdle in obtaining a patent is that the invention be nonobvious. The basic rule is that an invention is not patentable if "the subject matter as a whole would have been obvious at the time the invention was



made to a person having ordinary skill in the art.” In other words, the innovation must be a substantial advance over what was known in the field before; that is to say that if, in light of pre-existing technology, publications and other sources of public knowledge, the invention would have been obvious to one of ordinary skill in the relevant field of the invention, it would not be patentable. Examples of what would be obvious include mere change of color or substitution of equivalent materials.

An invention will also not be patentable if an inventor applies for a patent more than one year after someone else makes the same discovery and describes, publicly uses, sells or patents the invention in this country. This fact is true regardless of when the inventor completed his invention. Since even confidential notices can sometimes constitute such “public use,” many companies lose their U.S. patent rights by failing to file a timely patent application.

#### **Filing a Patent Application (See flow chart, p.8)**

The process of obtaining a patent in the United States is known as “patent prosecution” and centers on the submission to the U.S. Patent Office of a patent application. Although a patent applicant may file his own application, most applicants are represented by a registered patent attorney or registered patent agent. Prior to drafting the application, applicants frequently conduct a search for relevant prior art although there is no obligation to do so and many patent applications are filed without it.

A patent application consists of a “specification,” which is a section describing the invention and how it is made and used, and a “claims” section which sets forth the specific protection being sought. The basic relationship between the two sections is that the claims enumerate what is patentable about the specification. The filing date of such an application is the date on which the specification, any necessary drawings, the names of the inventors and at least one claim are received by the U.S. Patent Office or, under certain conditions, the date they were mailed. This date is important because it establishes a priority of invention in the event two inventors seek a patent on the same

subject matter. The patent laws in the U.S. award protection to the first person who conceives and diligently develops the invention and not to the one who first files the application. However, if a dispute arises between two applicants, the applicant who was the first to file is afforded a presumption of seniority.

The patent specification should be sufficiently descriptive to enable someone “skilled in the relevant art” to make and use the invention. In other words, it must be written in terms sufficiently full, clear, concise, and exact to enable any person skilled in the art to which the invention pertains to be able to make and use the invention. The specification must also describe the “best mode,” or best method, known to the inventor for carrying out the invention.

The claims section of the patent defines the metes and bounds of the patent owner’s exclusive rights during the life of the patent. Every patent application must have at least one or more claims that particularly and distinctly define the subject matter that the inventor regards as his invention. A claim is easily recognized because it is the object of a sentence that usually begins with “I claim” or “What is claimed.”

#### **The Costs of Filing a Patent Application**

The basic filing fee for a U.S. patent application is currently \$750. For small entities (those having fewer than 500 employees), this fee is reduced to \$375. Attorney’s fees involved in preparing the application vary widely. For simple inventions, the cost may be less than \$5000. For complicated inventions, fees of \$10,000 or more are not uncommon. As a result, most companies only seek to patent inventions that have a potential market value that can justify such costs and should endure obsolescence for more than two or three years.

Once a patent is issued, maintenance fees must be paid periodically to keep the patent enforceable. Maintenance fees are due six months before the end of the fourth, eighth and twelfth years following the issuance of the patent, and currently range from \$990 to \$2990.

#### **The Time Required to Obtain a Patent**

Once the application is filed with the Patent Office, it will be reviewed by one of over 2,000 examiners, each of whom has expertise in some area of technology. Because of a perpetual backlog of applications, a year or more may pass before the examiner actually reviews the application. Typically, after reviewing the application, the examiner will send the patent attorney an “office action” citing previous patents and other documents relating to the field of the invention, rejecting some or all of the claims and objecting to any informalities of the application.

Within the period of time allotted for response, which usually can be extended up to a maximum period of six months upon payment of a fee, the applicant must respond to all of the examiner’s rejections and objections, or the application is abandoned. Applicants may respond to claim rejections and objections by amendment of the claims, by argument, or by a combination of both. After the applicant submits a response to the first Examiner’s Action, the examiner reconsiders his application. Frequently, the process goes back and forth several times until the applicant and the Examiner are in agreement, during which time the file history of the patent application can become voluminous.

If the examiner is persuaded by an applicant’s arguments, he issues a Notice of Allowance which means that, upon receipt of an “issue fee,” the patent will issue. If the examiner is not persuaded, he may issue a “final office action,” to which the applicant has several options: abandon the application, file an appeal with the Board of Patent Appeals, take the allowed claims and cancel the others, or refile the application using “continuation” procedures.

The average length of time from the initial filing of an application to the issuance of a patent is between two and three years.

#### **The Rights of a Patent Owner and Presumption of Validity**

Once the patent issues, the patent protection lasts 20 years from the date of filing the application

and gives the patent owner the exclusive right to make, use or sell the invention. One may transfer patent rights to others and such transfers are recorded in the U.S. Patent and Trademark Office (PTO). It is important to note that a U.S. patent only protects an invention from infringement in the United States. To obtain foreign patent protection, a patent application must be filed in each country where protection is sought.

A patent owner may sue anyone he believes has been using all or part of the patent without his consent. If a patent infringement suit arises, the alleged infringer can challenge a patent’s validity by demonstrating that the grant of patent was unwarranted. Once a patent issues, however, it is presumed valid, which means that the defendant must demonstrate, by clear and convincing evidence, that the Patent Office was mistaken in allowing the patent. Thus, a court which determines that an alleged infringer has not met his burden of proving the patent invalid need not affirmatively conclude that the patent is valid to uphold its validity.

#### **Conclusion**

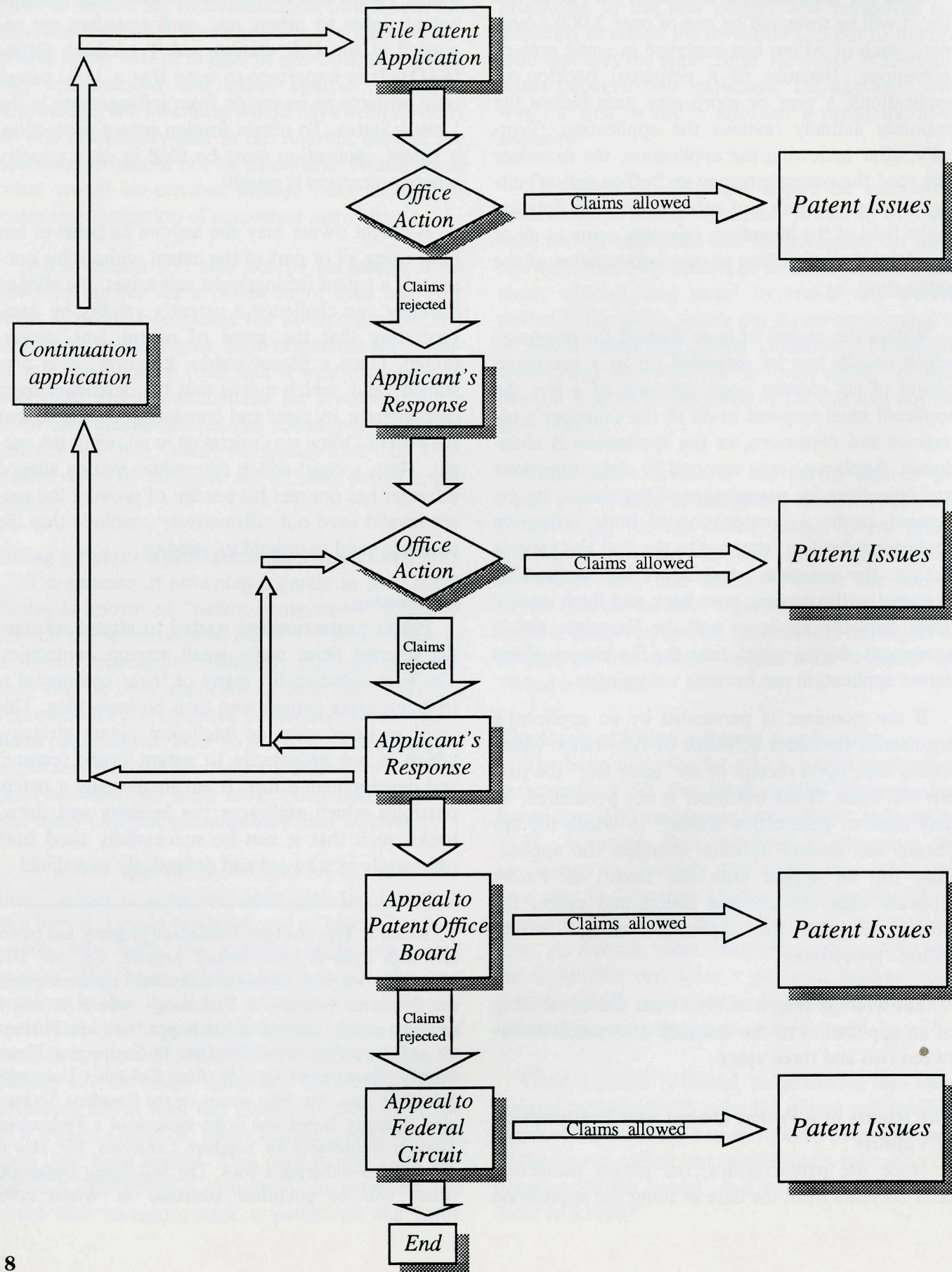
Patent protection has started to attract substantial interest from many small startup companies. The best initiative for many of these companies is to incorporate patents into their business plan. This involves developing an intelligent patent strategy, which is not necessarily to patent every research and development effort. It entails devising a patent portfolio which embraces the benefits and drawbacks such that it can be successfully used both offensively as a sword and defensively as a shield.

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\* Richard C. Hsu practices intellectual property and patent law with Lyon & Lyon in Los Angeles, CA. Mr. Hsu earned his B.S. with honors in Electrical Engineering from the California Institute of Technology, where he was a founding charter member of Eta Kappa Nu’s Iota Pi chapter and a member of the Tau Beta Pi Engineering Honor Society. He received his J.D. from Columbia University School of Law. Mr. Hsu serves on the Pasadena Technoplex Advisory Board and is the director of a Technology Transfer Roundtable for Southern California. Mr. Hsu is currently co-authoring a book, *The Self-Patent Deskbook*, which will be published sometime in Winter 1996.



# Procedures for a Patent Application



## 1995 OUTSTANDING YOUNG EE AWARDS

by Ralph J. Preiss, Past Chairman, OYEE Committee



1995 Winner, Phyllis L. Cosentino



Phyllis L. Cosentino, AT&T Network Systems, Naperville, Illinois, was honored as the Outstanding Young Electrical Engineer of 1995 at the 60th Eta Kappa Nu Awards Banquet held at the Princeton Marriott, in Princeton, New Jersey on Monday, April 22, 1996. Mrs. Cosentino was one of the 1992 Honorable Mentions and was picked for the top award by a committee of Jurors at the end of last year.

At the same ceremony, Kavitha Chandra, AT&T Bell Laboratories, Holmdel; Susan M. Lord, Bucknell University; and William T. Mayweather, III, David Sarnoff Research Center, Princeton, New Jersey were awarded Honorable Mentions. Also, Chatschik Bisdikian, IBM Research, Yorktown Heights; Frank Lane, Hitachi America, Princeton, New Jersey; and Thu-Van Luu, Lockheed-Martin, Moorestown, New Jersey were introduced as Finalists for the first time. All of the above were chosen from over sixty nominations which were solicited and received by the Awards Organization Committee.

The award winners are honored for their contributions to electrical, computer, and communications engineering, as well as to society at large. Selection of the winner and honorable mentions is based on individual accomplishments. It is not influenced by newsworthiness or commercial value of a contribution. In the same way, contributions to local neighborhoods and schools, religious organizations and the arts is measured only in personal contributions, and not for newsworthiness or sensationalism.

It is Eta Kappa Nu's emphasis on the well-rounded individual that leads it to recognize people who, in addition to striving for excellence in their profession, also give of themselves to the betterment of society, community, and family. We hold that an education based upon the acquisition of technical knowledge and the development of analytical and logical thinking is a prerequisite to achievement in many lines of endeavor.

Mrs. Cosentino was promoted to the position of Director of Wireless Applications Engineering in 1995. This organization supplies cellular infrastructure equipment to cellular service providers and to the new providers of Personal Communications Services. It is responsible for engineering mobile switching centers to provide the appropriate signaling, features, and intersystem connectivity, from the bid and proposal stage to system implementation. The Radio Frequency Engineering area within her group provides detailed geographic plots for cell site placement and RF channel engineering. She also manages the first

implementation of spread spectrum digital technology (code division multiple access) in a commercial wireless network.

In 1991, Mrs. Cosentino was named Technical Manager of International Wireless Switching Systems Engineering. In this job she led AT&T's efforts to expand the application of wireless system infrastructure on a global basis.

This work included the deployment of wireless equipment in Argentina alone to serve over 22 million inhabitants, installing equipment in Korea, and expanding coverage in such countries as Brazil, China, Peru, Malaysia, and India, among others. Her team was so successful that she was given responsibilities to include applications engineering for all wireless customers in North America in 1994.

She led the AT&T effort to introduce Wireless Subscriber Systems, a new product, to provide a low cost wireless alternative to copper wire loop installation. Over three hundred of these systems have been deployed in South America and additional systems are being applied in the Marshall Islands, the People's Republic of China, and in the former Soviet Union. This system is part of an important movement in telecommunications to rapidly provide economical phone service to developing areas. More than half of the world's population is served by less than a fifth of the world's phones.

Phyllis Cosentino is a graduate of the University of Michigan, receiving both a BS and an MS degree in electrical engineering from that institution. She became a member of the technical staff at the AT&T Bell Laboratories in 1986 and has made exceptional contributions in the areas of network performance, undersea lightwave systems, and network wireless systems. She became recognized as an industry expert in the development of cellular mobile registration capabilities and has presented papers at conferences and as invited guest speaker on the subject.

She was first nominated in 1992 as the outstanding young EE by David M. Poticny, then AT&T Technical Support Vice President. In 1994 she was admitted to the AT&T Leadership and Development Program, which identifies future AT&T business leaders and provides members with special training, advancement, and educational opportunities. Under the auspices of this program she attended the Program for Executives at Carnegie Mellon University in the spring of 1994.

Besides her busy work schedule, Mrs. Cosentino has been an officer of the Chicago Chapter of the

IEEE Communications Society for the last three years. She also introduced a program for "adopting a school" for tutoring services in 1991, and continues tutoring at the school her committee adopted, the McCormick School. She also continues volunteer work for the Blind Services Association of Chicago. Here she is currently involved in taping textbooks for visually impaired students at the College of DuPage. She is a sponsor of a new program at the Thomas Kelly High School intended to teach students problem solving and to develop their enthusiasm for entering the field of engineering. She is also a volunteer on the Strategic Planning Committee for School District U-46, the second largest school district in Illinois.

Mrs. Cosentino has taken up Mandarin Chinese, is an accomplished clarinetist, and is now studying piano, playing classical, blues or ragtime, and popular pieces. In sports, she makes it a point to swim 4-5 miles each week during the lunch hour, and run 10-20 miles a week before work. She has entered a few races, and one of the highlights of last summer was being accompanied by her husband (and over 3000 other runners) in the Taste of Chicago 5K.

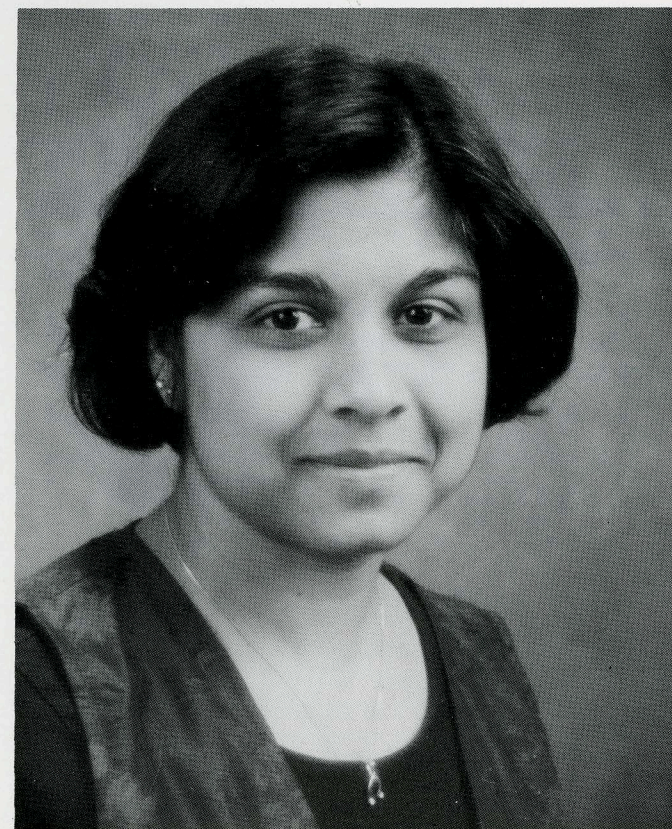
Dr. Kavitha Chandra, named Honorable Mention, now works in the Teletraffic Theory and Systems Performance Department at the AT&T Bell Laboratories in Holmdel, New Jersey. A native of Bangalore, India, she received her BS in EE from Bangalore University in 1985, and then went on to the University of Massachusetts in Lowell, receiving her MS in Computer Engineering and her Doctor of Engineering in 1987 and 1992 respectively. She worked at UMass as Research Assistant Professor between 1992 and 1994, till she joined AT&T as Member of Technical Staff. Here she was immediately recognized as an outstanding candidate, and nominated by James F. Day, Systems and Applications Center Vice-President.

She has published numerous papers in communications, acoustics and signal processing, and in fluid dynamics. Her doctoral thesis work was motivated by the need for a non-invasive, portable and inexpensive technique for detecting and diagnosing bone diseases, such as osteoporosis with ultrasound. In her research she developed an improved method for solving the Helmholtz integral equations for acoustic scattering in complex media, such as appears in meat and bones. These equations describe the modeling of acoustic scattering from complex media which allowed a quantitative relationship to be established between

external measurements and the internal distribution of the medium interrogated. Her subsequent lectures and publications describe what she has learned in the different engineering disciplines.

Besides her work and speaking schedule, she tutors minority students in the Red Bank middle and high schools, something she started at Lowell as a graduate student, interesting minorities and women to the challenges and rewards of an engineering education. She also volunteers her services to the Red Bank Soup Kitchen and formerly, at Lowell to the Battered Women's Shelter.

Dr. Susan Lord, who was a Finalist in 1994, has been named Honorable Mention this year. A brief summary of her accomplishments leading up to her nomination were reported on in the fall issue of The Bridge. She is a graduate of Cornell University, receiving her BS in EE and Material Science in 1987. She went on to Stanford University where she received both her MS and PhD degrees 1988 and 1993. She joined the EE faculty at Bucknell University, Lewisburg, Pennsylvania, and except for summers has been Assistant Professor there ever since. She was



**Kavitha Chandra**  
**HONORABLE MENTION**



nominated by Maurice F. Aburdene, Professor and Chair of the EE Department.

She is an expert on molecular beam epitaxy and novel material growth and has published extensively in that field. In 1994 she was involved in monitoring crystal growth experiments in the space shuttle Columbia, that could result in higher quality materials and faster semiconductors. It is assumed that earth-produced materials have qualities that interfere with electrical conductivity, which may not form in zero gravity. In the summer of 1995 she continued her work at the Goddard Space Flight Center in Greenbelt, Maryland.

In her volunteer work, she advised Lewisburg Highschool students who entered the National Engineering Design Challenge and placed first in the regional and state competitions and second place in the national competition for designing and demonstrating a device to allow a person in a wheelchair to use an overhead projector. She is also advisor to the Bucknell Chapter of the Society of Women Engineers. In sports she covered some 3500 miles on bicycle last year, and entered the 1995 Eastern Tandem Rally, in Geneva,

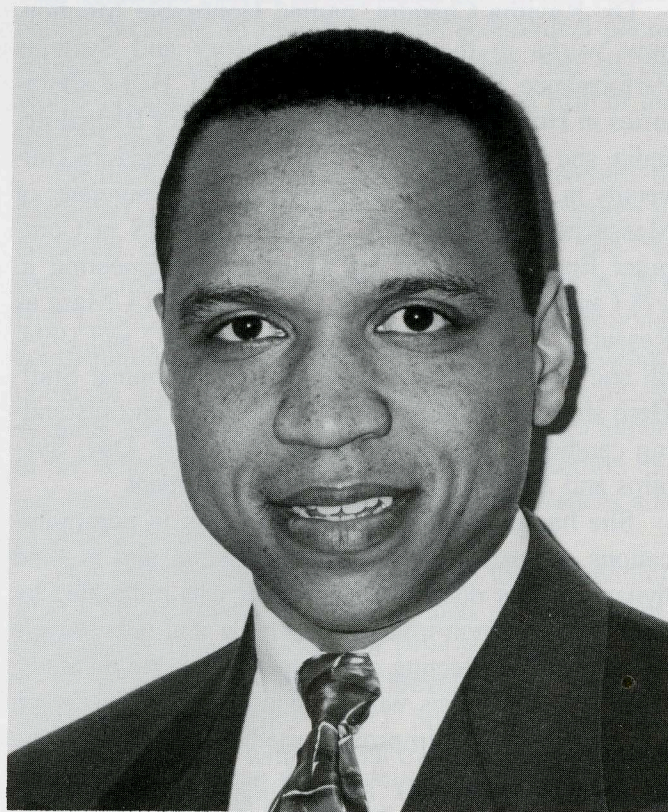


**Susan M. Lord**  
**HONORABLE MENTION**

New York, and the 1995 Velo New Hampshire rally, a 450-miles-in-4-days challenge.

William T. Mayweather, III is our third Honorable Mention this year. He too was a Finalist last year and has increased his impressive record as youngest Group Head at the David Sarnoff Research Center by more than quadrupling his budget and research responsibilities in less than five years. He graduated from the Massachusetts Institute of Technology Coop program with a simultaneous Bachelors and Masters degree in EE in 1987. He came to the Research Center in 1988 leading the development of the European Adaptive Line Comb integrated circuit. He also designed a video rate rastering integrated circuit to compress or expand the video line in the generation of NTSC compatible HDTV. In 1990 he was promoted to Integrated Technology Leader in the TV Research Laboratory, and in 1991 Head of the Systems and Integrated Circuits Design Group, where he not only is a good manager, but also makes technical contributions to his projects, earning a number of patents, publishing papers, and speaking at technical conferences.

He continues his volunteer service as Technical



**William T. Mayweather, III**  
**HONORABLE MENTION**

Coordinator for the Minorities in Engineering Program, an outgrowth of the activities of the National Action Council for Minorities in Engineering. This program introduces approximately 30 minority high school students in his district to engineering each year. This effort earned Sarnoff the 1995 IRI PreCollege Education Committee Award. He also is an active member of the Saint Mark United Methodist Church, serving on the Staff-Parish Committee to ensure smooth interrelations between the staff and the congregation. Another of his accomplishments is his demonstration of fatherly pride in the development of his two young children.

The Eta Kappa Nu Outstanding Young Electrical Engineer Award is presented annually to young (under thirty-five) electrical and computer engineering graduates (within ten years from their BS degree) for meritorious service in the interest of their fellow man as well as for outstanding achievements in their chosen profession.

Those who are honored with this prestigious award are selected each year through a well-defined process which has remained virtually unchanged since its inception in 1936.

The nomination process involves the initiative of the nominator and the participation of at least three references in support of the candidate. The dossiers of all nominees are carefully screened by the Awards Organization Committee, a standing committee of Eta Kappa Nu, which is responsible for soliciting and updating the nominations every year, and which then selects up to a dozen finalists for submission to the Jury of Award. The members of the 1995 Award Organization Committee were:

- Mark G. Adamiak, GE Protection and Control, Malvern, Pennsylvania
- Clarence Baldwin, ABB Power T&D Company, Muncie, Indiana
- Robert Bartolini, David Sarnoff Research Center, Princeton, New Jersey
- Donald Christiansen, IEEE-Retired, Long Island
- James D'Arcy, Martin-Astro Space Division, Princeton, New Jersey
- Larry Dwon, Retired, Columbus, Ohio
- Irving Engelson, IEEE, Piscataway, New Jersey
- Quayne Gennaro, Design by Hilton, Inc., Vienna, Virginia

- Willard Groth, Consultant, Boca Raton, Florida
- Michael Hajny, Consultant, Charleston, South Carolina
- James Hebson, Jr., PSE&G, Newark, New Jersey
- Cecelia Jankowski, IEEE, Piscataway, New Jersey
- Ralph Preiss, IBM-Retired, Poughkeepsie, New York
- Berthold Sheffield, RCA-Retired, Belle Mead, New Jersey
- Joseph Strano, New Jersey Institute of Technology, Holmdel, New Jersey
- Kurt Trampel, IBM Corporation, Katonah, New York
- Lawrence Wechsler, GE-Retired, Dewitt, New York

The Jury of Award is constituted once a year from highly respected leaders of the profession for the final selection of the winner and honorable mention(s). The 1995 Jury of Award consisted of the following individuals:

- Robert Bartolini, Awards Chair, Eta Kappa Nu OYEE, David Sarnoff Research Center, Princeton, New Jersey
- Lance Glasser, Director, Electronics Technology Office, Arlington, Virginia
- Michael Hajny, President of Eta Kappa Nu, Charleston, South Carolina
- John Henderson, Chief Researcher, Hitachi America, Ltd., Princeton, New Jersey
- Steven Malyszka, Director EW Engineering, Lockheed Martin Astro-space, Princeton, New Jersey
- Sohrab Rabii, Chairperson, Dept. of Electrical Engineering, The Moore School of Electrical Engineering, University of Pennsylvania, Philadelphia, Pennsylvania
- John Reckleff, Executive Vice President, ABB Power T&D Company, Raleigh, North Carolina

Nominations for the award are solicited each year through the Eta Kappa Nu Award Organization Committee. Nominations may be made by any member or group of members of Eta Kappa Nu; by leaders from industry; by any Section or Society of the Institute of Electrical and Electronics Engineers, Inc.; by





**1995 Jury of Award. From Left to Right: John Reckleff; John Henderson; Robert A. Bartolini; Steven Malyszka; Sohrab Rabii; Michael R. Hajny; Lance Glasser (not shown)**

the heads of electrical and computer engineering departments of any U.S. College or university; or by any other individuals or groups, who, in the opinion of the Awards Organization Committee, are properly qualified to make nominations.

Nomination forms for 1996 may be obtained from the Executive Secretary of Eta Kappa Nu, P.O.Box 2107, Rolla, MO 65402, and should be returned to him by August 1, 1996 for processing. An eligible candidate for OYEE is one who:

- has an electrical engineering degree (BS, MS, or PhD) from a recognized U.S. engineering school,
- will have been graduated not more than ten years as of May 1, 1996 from a specified baccalaureate program, and
- will not have reached his or her thirty-fifth birthday as of May 1, 1996.

Awards are based upon (1) the candidate's achievements of note in his or her chosen work, including invention of devices, circuits, or processes, improvements in analyses, discovery of important facts or relationships, developments of new methods, exceptional results in teaching, outstanding industrial management, or direction of research and development; (2) the candidate's service to community, state, or nation, such as activity in philanthropic, religious, charitable, or social enterprises, leadership in youth organizations, or engagement in civic or political affairs; and (3) the candidate's cultural and aesthetic development, such as work done in fine arts, architecture or the performing arts. Studies in history, economics, or politics are also highly valued, as well as any other noteworthy accomplishments, including leadership participation in professional societies and other organizations.

## PEOPLE

### RE-ELECTED Dr. Bruce A. Eisenstein IEEE Vice President

Dr. Bruce A. Eisenstein of Wyndmoor, PA, professor of electrical and computer engineering at Drexel University in Philadelphia, has been elected to his second term as vice president of the Technical Activities Board by the Assembly of The Institute of Electrical and Electronics Engineers, Inc. (IEEE). He will serve in this capacity as chairman of the Technical Activities Board and as a member of the IEEE Board of Directors and Executive Committee.

Dr. Eisenstein has been an active member since joining the Institute in 1962. In 1995 he served his first term as vice president of Technical Activities. Among his other activities, he previously served as Division VI director. He also is a Member of the IEEE Foundation Board of Directors.

Professor Eisenstein has published nearly 50 papers in the areas of digital signal processing, pattern recognition, deconvolution and biomedical engineering. He was the 1976 recipient of the C. Holmes MacDonald Award of Eta Kappa Nu, given annually to an Outstanding Young Electrical Engineering Educator. He received his bachelor's degree in E.E. from MIT, his Master's in E.E. from Drexel University, and his doctorate from the University of Pennsylvania. Dr. Eisenstein is also a registered professional engineer.

### IN MEMORIAM Howard Martin Hess

Howard Martin Hess, husband of Alice Baldwin Hess, died at home on October 13 in Longmont, Colorado, at the age of 87. Howard was born in Akron, Michigan, September 11, 1908. He was the only child of Maggie Jeanette Miller Hess and Eugene Alva Hess. He and Alice were married in Detroit, Michigan on August 21, 1937.

Howard and Alice moved to Longmont from Detroit in 1986. In Longmont, Howard was a member of the Longmont United Hospital Foundation Board, the Committee for Art in Public Places, the Torch Club of Boulder County and the Unitarian Universalist Church of Boulder. He and Alice have been enthusiastic supporters of the Longmont Symphony Orchestra, Public Television, and many other local organizations.

In Detroit, Howard had a long professional association with the Wayne State University. He received the first Bachelor of Science degree given in Electrical Engineering at Wayne State in 1934 and began his career on the faculty of Wayne State that same year. He became a Full Professor in 1950 and served many administrative roles in the College of Engineering. He was head of the Electrical Engineering Department and Associate Dean and Acting Dean of the College of Engineering. After four years as the Associate Director of the University Office of Development, he returned to the College of Engineering as the Director of

Engineering Technology, a program he was instrumental in developing.

Howard was elected to several engineering honor societies, including Tau Beta Pi, Eta Kappa Nu and Sigma Pi Sigma. He was given the Distinguished Engineering Alumni Achievement Award by the College of Engineering and elected a member of its Hall of Fame. He was active in many professional societies. He was a charter member and served as President of the Engineering Society of Detroit. He served in multiple capacities, at the local and national level, in the Institute of Electrical and Electronic Engineers (IEEE), to which he was elected as a Fellow. He was an active member of the Torch Club of Detroit.

Howard's professional interests were balanced by involvement in community affairs. He was moderator of the First Unitarian Universalist Church of Detroit and chairman of its Trust. At the national level he served as Chairman of the United Unitarian Appeal and of the Allocations Committee of the Unitarian Universalist Association. He was active in the development of the Metropolitan Detroit Science Fair, as well as in the American Field Service, a foreign exchange program for high school students. Howard and Alice were Friends of the Detroit Public Library, supporters of the Detroit Zoological Gardens, the Detroit Museum of Art and many other civic and cultural organizations. His personal strength and grace, moral fiber and warm sense of humor will certainly be sorely missed.



## IN MEMORIAM S. REID WARREN, Jr.

S. Reid Warren, Jr. was born in Mt. Airy, Philadelphia, Pennsylvania on January 31, 1908 and passed away suddenly on January 13, 1996. He graduated from Lansdowne High School in 1924 and entered The Moore School of Electrical Engineering, University of Pennsylvania, when he was 16 years of age. He was one of a large class of freshman students who, in their first meeting with Dean Harold Pender, were told to look at the person on their right and at the person on their left since they would not see them at graduation time as only one-third of those present would graduate. But Reid did graduate in 1928 with the degree Bachelor of Science in Electrical Engineering and with Dean Pender's urging, stayed on for a master's degree in 1929 and a doctorate in 1937. Having taught briefly at Temple University, he formally joined The Moore School staff in 1929 and the faculty as an instructor in 1933. He became Emeritus Professor in 1976, having been a member of the University community for over 50 years.

Professor Warren's career was closely integrated with the development of the University's programs in engineering ranging from assisting, in the summer preceding his junior year, in the move of The Moore School from the Engineering Building to the old musical instrument factory at the southwest corner of 33rd and Walnut Streets, through the initiation and development of work in bioengineering, to the holding of important administrative posts in the School of Engineering and Applied Science. During the 1930's he taught, at least once, all of the undergraduate courses in electrical engineering. With Dean Harold Pender, Professor Warren published an undergraduate text covering Electric Circuits and Fields that was a mainstay for electrical engineering students for many years.

Early in his career Professor Warren became associated with Professor Charles Weyl in the operation of the Moore School X-ray Laboratory which

later was renamed the Electromedical Laboratory. Initial work in radiological physics was directed toward the refinement and calibration of x-ray equipment and techniques used in the early diagnosis of tuberculosis. Continuing from the early 1930's until 1944, the research was sponsored by the National Tuberculosis Association and the Henry Phipps Institute. Professor Warren's personal efforts included visits to nearly 200 sanatoria in the United States and Canada during that period. Later, during a sabbatical leave from January to August in 1962, he visited 25 schools of engineering and 13 laboratories of radiological physics in 14 European countries.

In 1947 he became a founding member of the American Institute of Electrical Engineers' Committee on Engineering in Medicine and Biology, which later sponsored large annual biomedical engineering conferences.

The Electromedical Laboratory expanded into the Biomedical Electronic Engineering Graduate Department in 1961. It provided the first PH.D. program in biomedical engineering in the country. In 1973 it became the Bioengineering Department of the School of Engineering and Applied Science.

Professor Warren worked closely with the Radiology Department at HUP and was appointed to the faculty of the School of Medicine. Upon retirement in 1976 he became the first Penn faculty member to have emeritus appointments in both Engineering and the School of Medicine. Professor Warren was author or co-author of 3 books and over 30 technical papers and handbook articles relating to radiological physics and roentgenography of the chest. In addition, under the auspices of the International Electrotechnical Commission he participated in the preparation of a set of international definitions in these fields.

From 1951-1973 Reid Warren headed undergraduate engineering education at Penn serving in a leadership role in turn as vice dean, assistant vice president and associate dean. Throughout his tenure in this position he was a strong advocate, both at Penn

and in the engineering education community, for linkages between engineering and the humanities. Earlier in his career he developed collateral reading courses intended to assure that Moore School students were well read, appreciated the arts, and understood that ethical behavior and lifetime learning were essential. His effectiveness as a teacher was recognized in 1973 when the Penn Engineering Alumni Society established the S.Reid Warren Jr. Award for Distinguished Teaching, awarded annually in recognition of outstanding service in stimulating and guiding the intellectual development of undergraduate engineering students.

On the broader campus, he served as member and chairman of numerous committees, among which were the Educational Policy Committee of the Educational Council, the Thouron Scholarship Committee, the Honorary Degrees Committee, and the Radiation Safety Committee. He also served the Faculty Club as a member of the Board of Governors, and as Vice President and as President.

In 1953 he was named a Fellow of the American Institute of Electrical Engineers "For outstanding leadership in the application of electrical engineering principles in the medical field, and for leadership in the promotion of appreciation of such work among both engineers and physicians." He was a Fellow of the American Association for the Advancement of Science and a Fellow in Physics, American College of Radiology.

Other honors he received included, in 1976, the D. Robert Yarnall Award, presented by the Engineering Alumni Society to an Engineering Alumnus for "outstanding contributions in the field of engineering to society," and, in 1984, Eta Kappa Nu named him an "Eminent Member", an award given to top engineers who are considered "benefactors of mankind". He also served as National President of this organization from 1955-56.

He is survived by his wife, Marian; two sons, S. Reid III and Alan; two grandchildren and three great-grandchildren.

## SPEED BUMPS

by

George W. Swenson, Jr.

EDITOR'S NOTE: The author (BG '44) is Professor Emeritus of Electrical Engineering and of Astronomy at the University of Illinois at Urbana-Champaign.

Most of us motorists, I suppose, have muttered impolite things under our breaths upon encountering a "speed bump" in a parking lot or alley. Some may even slow down a bit out of consideration for the car's suspension or in the belief that a slower speed results in a gentler jolt. To me, however, the most evident thing about the typical speed bump is that it's been poorly designed for its purpose. One actually experiences less discomfort at speeds considerably above the posted limit, and the bump is a real hazard to cyclists and persons in wheel-chairs.

Way back in 1952, I was teaching an evening course in linear dynamics at Washington University in St. Louis, for a group of engineers from local industries. The university is surrounded by the city, and the campus roads were inviting shortcuts for commuters, so to discourage this traffic the buildings and grounds department had sprinkled speed bumps here and there. Experienced drivers, and those with some knowledge of mechanics, paid little heed to the bumps, but to bicyclists like me it was a real annoyance to have to dismount every hundred meters or so while hustling from classroom to lab to committee meeting. It seemed a good class exercise to investigate the rational design of a speed bump.

Adjourning to the parking lot we bounced up and down on the bumpers of a number of cars to determine the resonant frequency and the rate of damping of the typical suspension system. From this and a simplified model of the system one could write directly the solution to the second order differential equation describing the vertical motion of the car. The forcing function of the equation, of course is the vertical displacement of the tires caused by the bump. It would be desirable to have the least possible stress on the tires and suspension system while causing the most annoyance to the occupants of the car at the critical speed. It would also be desirable to expose bicyclists to the least possible danger and inconvenience. The bump should introduce the wheel displacement gradually but should have a shape that will

produce a large vertical velocity of the car body. It should also be easy to build and maintain. The function

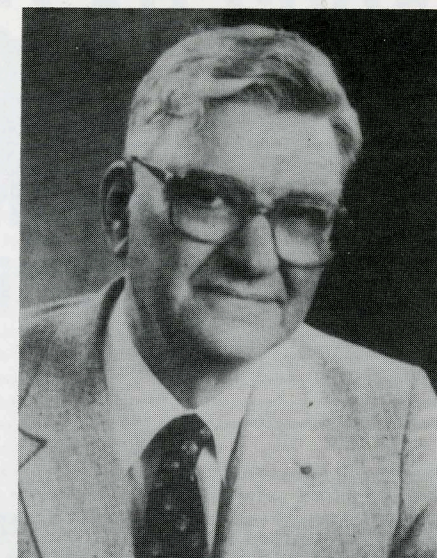
$$D = A[1 - \cos(wt)], \quad 0 \leq wt \leq 2\pi$$

$$D = 0, \text{ elsewhere}$$

where D is the vertical displacement, t is time, w is speed, satisfies these criteria. Doing the arithmetic shows that the bump, a biased cosinusoid, should have a period of, say 6 meters, as contrasted with the 30 centimeters of the usual bump. The car's response is that of a low-pass filter, while the excitation by the usual bump contains only higher frequencies. On the other hand, a bicycle had very "good" high frequency response.

Well, we designed our bump, and I wrote a letter to the director of the buildings and grounds department giving the details, not knowing what to expect in return. To my surprise I got a reply thanking me for my interest and saying that Dr. Compton had also designed a bump, and that they were going to build it on the main road through the campus. Arthur Holly Compton, the Chancellor of Washington University, was a physicist, a Nobel Laureate and a man of immense prestige. I could understand why they were going to build his bump! I telephoned the Chancellor and we compared notes. We had arrived at similar solutions, except that his bump had two cycles of the cosine shape and mine had one, and he'd used a Fourier transformation and I a Laplace transformation in solving for the vertical velocity.

Years later, long after I'd left St. Louis, I drove there to give a seminar talk. By this time the "Compton Bump" had achieved monumental status. It was plainly marked with a warning sign, there on the main road through the campus. The bump itself was not particularly impressive: a few inches high, just a gentle undulation in the pavement. Always the empiricist, I tried it at just above the posted speed. Big mistake! My 1960 Chevrolet almost did a somersault, and even now the term "Compton Effect" brings to mind the bruised scalp and headache I earned that day.





# 1993-94 Chapter Awards

## Purdue's Beta Chapter is Thirteenth Consecutive Year National Winner

by Alan Lefkow

For the academic year 1993-94, four HKN college chapters received awards for having an outstanding program of activities. Awards are broken into three categories. Certificate of Merit winners are recognized as up-and-coming chapters whose programs demonstrate unselfish dedication to their fellow students and community. Only one chapter, Iota Gamma at the University of California-LA, received this recognition this year. Honorable Mention winners are recognized as truly outstanding chapters whose extensive program of activities stands out from the rest. Two chapters won this award for 1993-94: Gamma Mu at Texas A&M University, and Beta Epsilon at the University of Michigan. The National Winner is simply that chapter whose program stands out above all these others. For thirteen consecutive years, Beta Chapter at Purdue University has been chosen the National Winner due to its truly outstanding program of activities.

The Outstanding Chapter-Activities Award program epitomizes the characteristics of a successful member of Eta Kappa Nu. Members' election to Eta Kappa Nu demonstrates their academic ability. But members, working together in concert as a college chapter, demonstrate their humanitarian side with their activities of service to their fellow students, their department, their school, and the community at large. In return, the Chapter Award program provides recognition of college chapters for their programs of service to their students and community. For example, Texas A&M submitted their report in full color. Among their many activities, they acted as consultants to juniors during the spring scheduling period, and provided serious recommendations of improvements to their department head that were

well received. The University of Michigan ran an Outreach program to grade schoolers about science and engineering, and generated a course evaluation guide for use by the students. They also participated in a Summer Science program for girls as part of the Center for the Education of Women. UCLA generated an E.E. curriculum survey, and sponsored an E.E. symposium of available research at the school for the upper classperson.

These are but a few of the activities the winning chapters performed for their school, department, or community. Outstanding chapters are selected based on their annual chapter report. Any chapter that sends in an annual report is automatically entered into the competition. Reports arrive at National after the end of the academic year and into early fall. They are judged in the winter, and the winners announced by spring. The Chapter Award program is also unique. One winning award can touch the hearts of a whole chapter. The award plaques themselves have been made as rich as possible. The National and Honorable Mention winners receive metal plaques engraved in color. The Certificate winners receive their awards laminated in walnut.

Winning chapters send in reports of distinction that do justice to their programs of activities, and many of these reports have been published in the pages of BRIDGE as examples to others. Desktop publishing and other professional services on campus have contributed to annual reports that look as good as the chapter they portray. A winning report requires hard work; but, then, so does an outstanding program of activities. Iota Gamma's Certificate of Merit report is presented here as an encouraging example.

## "ETA KAPPA NU"

### ANNUAL REPORT

#### IOTA GAMMA CHAPTER

@

UNIVERSITY OF CALIFORNIA, LOS ANGELES

1993-1994

#### ETA KAPPA NU OFFICERS

##### SUMMER/FALL 1993

President Mike Sickmiller  
Vice President Helen Chou  
Treasurer Alvin Ching  
Recording Secretary Steven Chin  
Corresponding Secretary Sheng Kong  
Historian Bryan Yoshida  
Activities Chair Kristyn Do  
Bridge Correspondents Jonathan Ta  
Shuzhen Huang

##### WINTER/SPRING 1994

President Mike Sickmiller  
Vice President Steven Chin  
Treasurer Alvin Ching  
Recording Secretary Bryan Yoshida  
Corresponding Secretary Manuel Macatula  
Activities Chair Kristyn Do  
Events Chair Shuzhen Huang  
Bridge Correspondents Thao Luong  
Mark Ross

Faculty Advisor - Dr. Alan Willson, Jr.



HKN Officers Winter/Spring 94: (L to R) Dr. A. Willson (Advisor), M. Sickmiller, T. Luong, A. Ching, B. Yoshida, K. Do, M. Ross, S. Chin, M. Macatula

#### PRESIDENT'S ADDRESS



The 1993-94 academic year proved to be an active and successful year for UCLA's Iota Gamma Chapter. The chapter held many events with repeated success. Adhering to the Eta Kappa Nu commitment to serve, we devoted our time and energy to serving students in the electrical engineering and engineering community. Sponsoring activities such as high school tours and electrical engineering presentations, our members and officers worked long and hard to make the year a success.

We were fortunate enough this year to have two outstanding and enthusiastic pledge classes. This, coupled with the devotion of the active members and officers, has turned HKN into a rising star at UCLA. Our pledge classes have been growing in size and have been very enthusiastic over the past two years. Many of our initiates do not hesitate to become immediately involved with our events. Due to the influx of new minds and leaders, we have expanded the officer core to include several new positions such as the Activities Chair and Director of Corporate Relations. These directors head up their own committees in order to plan and execute the array of activities sponsored by our chapter. Formation of these committees makes it easier for all of our members, not just the officers, to become directly involved.

Our events for the 1993-94 year were numerous and provided many opportunities for the students to become involved in electrical engineering. Through my two terms as President of UCLA HKN, I have seen the chapter grow and prosper. We sponsored events through the department such as the Faculty/Student Forum and the Research Symposium, both of which proved to be informational to students and faculty. We devoted time to open labs, set up presentations on SPICE, organize corporate recruiting sessions, offer social events such as BBQ's and a bake sale as well as several other activities. The following annual report reflects the activities and achievements of the Iota Gamma Chapter of Eta Kappa Nu.

Sincerely,

*Mike Sickmiller*  
Mike Sickmiller  
Iota Gamma President

#### INITIATES

##### Fall 1993

Vishal Ailawadhi  
Binghua Cai  
Ralph Castro  
Andrew Chan  
Yat-Fai Sonny Chan  
Jackie Chang  
Jason Chang  
Tai Chau  
Michael L. Chen  
Christopher Deng  
Eric Garlepp  
Christopher Jones  
Ezekiel Kruglick  
Jackson Kf  
Thao Chi Luong  
Shun Yee Ng  
Ali Niknejad  
Henry Sanchez  
Stephen Wu  
Daisuke Yoshida

##### Spring 1994

Richard Au  
Gail Bertrand  
Lawrence Choi  
Jimmy Chou  
Prof. Bahram Jalali  
Robert Kim  
Ka-Yee Law  
Kenneth Law  
Prof. Gregory Pottie  
Michael Ryken  
Dan Stevenpiper  
Roderick Speece  
Prof. Oscar Stafsudd  
Amy Weisbin  
Prof. Jason Woo  
Prof. Ming Wu  
Prof. Eli Yablonovitch  
Prof. Aber Alwan



HKN Initiates for Spring 1994: (L to R) Top row - R. Kim, Dr. E. Yablonovitch, Dr. M. Wu, Dr. O. Stafsudd, Dr. M. Wu, A. Weisbin, R. Speece, M. Ryken, Dr. G. Pottie, D. Stevenpiper, K. Law. Bottom Row - K. Law, Dr. W. Kaiser, J. Chou, L. Choi, G. Bertrand, R. Au



## EE EVENTS

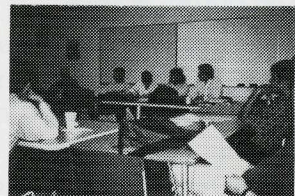
### EE Survey

During the Spring quarter, the Iota Gamma Chapter handed out their annual Electrical Engineering survey. About 15 upper division undergraduate EE courses were polled. The survey was originally designed as a vehicle by which the students could have an opportunity to voice their opinions on issues affecting the EE curriculum. Some of the types of questions included those that dealt with undergraduate labs, a proposed EE senior design project, humanities requirements, computer courses, favorite class/professor/teaching assistant, and student groups that serve the EE department. Of course, when passing out the survey, it was quite necessary to "bribe" the students with chocolate candies since future engineers here at UCLA are so busy and dedicated that they have little time to spare for other things besides studying. Many long hours were put in by Bryan Yoshida and Manuel Macatula in revising the survey so that it would address issues relevant to the current curriculum. The results were tabulated and presented at the annual EE Forum.

### EE Faculty/Student Forum

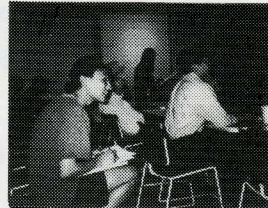
The annual EE Faculty/Student Forum was held on June 1, 1994. Its purpose was to present a "town meeting" type of atmosphere where students could openly discuss the current as well as future curriculum related issues with a few professors. It was also intended as a follow-up to the EE survey.

Professors Kolner, Villaseñor, Stafuidd, Wu, and Yablonovich and Dean Jacobsen graciously agreed to attend the Forum to provide feedback on the students' questions. One of the most important



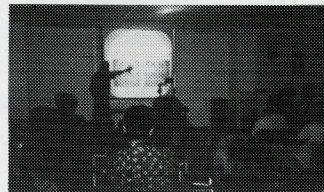
issues discussed was the change in the format of many EE classes; last year the EE department faculty changed the format of many classes from 2 hour periods twice a week to 1 hour periods 3 times a week. Students were finding that this change caused problems because the one hour class was often "rushed" by the professor, who tried to cram in more than an hour's lecture into an hour. In addition, the changing of some classes that were still in the 2 hour/twice a week format to 5 unit classes caused much havoc in the enrollment procedure and clearly did not provide any benefit as opposed to a 4 unit class.

Other suggestions were made regarding teaching style and the selection of T.A.'s. Also discussed were computer classes and requirements, especially the importance of C programming classes in the EE curriculum as well as in the work place. Professor Kolner noted that relying on computer tools and software too heavily can be dangerous if one does not know the basic foundations and principles of the work itself. Some other ideas were to have faculty offer lab tours to students in their classes in order to give them an idea on what kind of research is available for EEs. All in all, the Forum proved to be a very useful method by which interaction between the faculty and students was possible.



### EE Research Symposium

In June of 1994, HKN sponsored the EE Research Symposium. The purpose of the symposium was to inform undergrads of future career and research opportunities in specific fields. Many EE students have no idea of their specific field interests until they near graduation. Three prominent faculty members were asked to give short presentations of their respective fields of specialization. Drs. I. Rubin, J. Villaseñor and J. Woo spoke on topics such as the development of their field, current industry activity, future potential in the fields, cutting edge research, and their own personal experiences ranging from current research to past industry experience. EE fields discussed included Integrated Circuits and Systems, Communications, Signal Processing, and Solid State Electronics.



The mid-afternoon event turned out to be far more successful than predicted. Nearly 50 people attended for the symposium, including graduate and undergraduate students as well as an additional half dozen interested faculty members. The two hour session concluded with the informal mixing of the lecturers as well as other faculty members with the students. We provided catering to supplement the informal portion of the event and many of the undergrads were thankful for the opportunity to chat with the professors.

### SEAS Freshman Open House

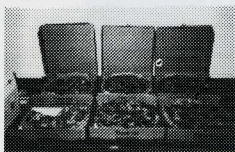
UCLA's School of Engineering and Applied Sciences (SEAS) held an open house for potential UCLA engineers during the Winter Quarter and the Iota Gamma Chapter helped familiarize those interested in electrical engineering. A student panel consisting of HKN members and other EE students (both graduate and undergraduate) answered any questions from the future collegians and their parents, and several professors fielded questions concerning the department and the curriculum. Later, tours and demonstrations were given from two of the 10 laboratories which included the Antenna Measurements, Integrated Circuits and Systems, and Semiconductor and Nanoelectronics Labs. Finally, faculty members, current students and future EE's gathered for refreshments where they could speak on a more individual level.

## SOCIAL EVENTS

### Knott's Scary Farm!!!

HKN members had a terrifying time celebrating Halloween at Knott's Scary Farm's Halloween Haunt. Boasted as the world's largest annual Halloween party, this amusement park transforms itself into a land of monsters, mazes, spooks and spectacles for the month of October. Running from 6 pm to 1am, visitors enter the fog shrouded park where monsters and nightmarish creatures lurk waiting to scare the unsuspecting witless (this sure isn't Disneyland). A group of about thirty of us were willing to brave the horrific adventure on October 15th. We had a wild and fun night going through frightening mazes and rides such as "Mother Noose's Scary Tales", "Santa Claws Mountain" and "Industrial Evil". All in all, we had great fun screaming and being chased by ghouls but by the end of the night, most of us were relieved to return home safe and sound.

### Pizza with Profs



We thought it might be neat to hang out with some of our profs on a more social level, so we sponsored an outing at our local Pizza Hut in the fall quarter. Using funds from corporate sponsorship, we were able to invite all members and seven professors for free to a night of all-you-can-eat salad, pizza, and drinks. We also collected fall

initiates' projects at the same time. We had a very good turnout with about 50 members and initiates attending. Everyone had a good time gorging on pizzas galore and socializing with other members and professors. Although there were a few mild cases of indigestion, this was a very successful outing and we hope to make it an annual event.

### School Barbecue

We sponsored an evening barbecue on-campus in winter quarter. This was a fun social event as we served up hamburgers, hot dogs, chips and soda to hungry engineers looking for dinner. Although there were several incidents of burgers and dogs dropped into the grill, not to mention an excess of burnt hot dogs at the end of the barbecue, the event in general was a successful one. We even brought out a stereo and had a lovely evening listening to the peaceful harmonies of *Metallica*.



HKN BBQ: (Above) Hungry HKN members stand around waiting for food. As seen, most of it has fallen into the grill.

(Left) Alvin slaves over a hot grill while Thao stands there and laughs in his face. Hey, you're supposed to cook them not burn them!

### Broomball

For a great sporting event that combines the intensity of hockey and the silliness of trying to keep your balance while brandishing a broom at hordes of advancing maniacs, nothing quite beats a good game of broomball. Played on ice, but with shoes instead of skates, broomball is basically like hockey except with brooms for sticks and a ball for a puck. There, however the resemblance comes to a halt. There are really no important rules to the game (and often little strategy). Often, two balls are used to further confuse the players. Thus, the situation that usually comes to pass is a score of people in two opposite corners of the rink slapping each other silly with their brooms in the vain hope that the ball might sneak its way past a goalie.

This year the Iota Gamma Chapter of HKN got together two times with Tau Beta Pi to duke it out at the Culver City Ice Rink at 12:00 midnight. No matter that some people had midterms the next day - there were people to be tripped and bruises to acquire! In the spring quarter at least 30 people decided to risk life and limb, showing up with weapons at the ready. Needless to say, regardless of the amount of ice that players ended up eating everyone had a load of fun.

### Intramural Football/Softball

Contrary to a popular north campus (where the humanities majors are) myth, engineers don't study all day to compete against 101 other students for the same job. They also play Football! HKN's intramural



Henry Sanchez expresses his displeasure after going hitless again in another HKN softball game. New record: 0 wins and 2 losses.

football team, the High Voltage IC's, which had its games on Sundays in the Fall Quarter had a 4-0 record, but fell short in the playoffs. Sadly, our intramural softball team, known only as the Field Effect Transistors, did not fare quite as well. Losing two games in a row put a definite stop to our quest for the playoffs. Our scores reflected our losing streak, something like 11-2 (yes this is softball). Hopefully our softball team will do better next year.

Simpson, Calvin, and Opus all very confused and deranged just as the students in Dr. Werter's classes often are. Students who have had Dr. Werter get a kick out of this shirt and proudly wear it as a testament to their survival just as someone might wear a shirt that proclaimed "I Survived Hurricane Andrew". Plenty of people decided to pick up a last memento of the days of basic circuit design. More than 50 T-shirts found their way into the hands of present or former Werter cadets. Selling the t-shirts turned out to be an excellent fundraiser and is a source of great amusement to many students.

### Bake Sale



To help raise money for our chapter, we sold home-baked goodies on-campus. Mike Sickmiller and Kristyn Do volunteered their kitchens and officers and members came and helped out in baking brownies, cookies, and rice krispies treats. There were a few botched jobs, such as forgetting to put the fudge in the brownie mix and some burnt brownies (Note: This occurred in Mike's kitchen, everything Kristyn made was (haha) perfect. However, by the day's end, even with officers munching up the goods, we had baked up a considerable amount of yummy treats. We set up a table in the UCLA Court of Sciences and we practically sold out by the end of the day. We found this to be a great fundraiser and feel that this is an exemplary way for electrical engineers to improve their culinary skills.

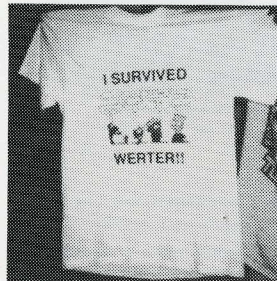
### BBQ with the Dean

Every spring, Dr. Alan Willson, the Associate Dean of the School of Engineering and Applied Science and advisor to HKN, throws a barbecue especially for HKN members. We had a good turnout of students and professors this spring as well as delicious food and beer to accompany us. This provided an excellent opportunity for HKN members to get to know the professors on a more personal level as several other faculty members were invited as well. There comes a certain amount of satisfaction in being able to talk to the faculty about beer, fishing, and camping instead of the usual topics of circuits and semiconductor physics. We appreciate Dr. Willson and his wife for holding this barbecue for us each year.



Our beloved advisor cooking up a storm.

## FUNDRAISERS



### T-Shirt Sale

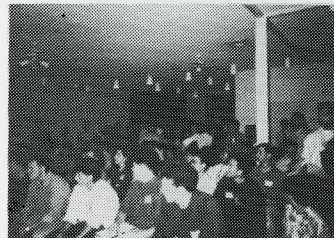
One of the most talked about professors in the EE department is definitely Dr. M. Werter. His unique, rigorous style of teaching and his famous bonus problems contribute to his status as probably the best known teacher in the EE department. As a result of his popularity, HKN decided to poke some good natured fun at him and his idiosyncracies by making a T-shirt depicting the logo - "I Survived Werter". Designed by a past HKN member, the front of the shirt depicts cartoon characters such as Bart

### Resume Book

In order to serve EE students, HKN in conjunction with the local chapter of IEEE provided a 1993/94 annual resume book. Jonathan Ta had the major responsibilities in this project. Resumes were taken from people responding to advertisements as well as those turned in during Engineering Career day. This book was sold to various interested corporations in the hopes that they might offer those students who turned in their resumes a job (a decidedly rare occasion). While promoting the future careers of UCLA EE students, the resume book also served as a fund raiser for our chapter.

### Corporate Support Program

In an effort to supplement the limited funds of the Iota Gamma Chapter at UCLA and to promote the presence of the industry on our campus, we initiated our corporate support program. We started out by contacting corporate representatives in the summer and fall through mail and by phone. In our program, we have two levels of sponsorship. The first is called the Associate package and calls for a sponsorship of \$250 by the company in exchange for free advertising, an EE UCLA resume book, and including their names on all of our flyers. The second is called the Executive package and starts at \$500. This program includes everything in the Associate program as well as an information session and a recruiting event held for the company on campus that is set up and run by HKN members.



Hordes of eager students crowd the Intel recruiting session

Some of the companies that were willing to sponsor us this year were IBM, Intel, AMD, TRW Tandem Computers, and Lear Astronics. Hopefully, this program will continue to be a success in the future. This year we were able to raise over \$2000 through the corporate support program as well as make the electrical engineering industry aware of UCLA's chapter of Eta Kappa Nu.



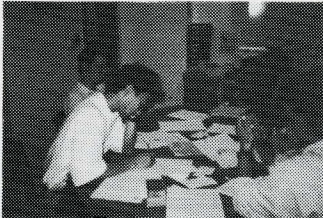
SERVICE PROJECTS

ESUC Welcome Day

On the day before classes began in the Fall Quarter, the Engineering Society of the University of California held a welcome day for incoming freshman engineers. HKN officers and members volunteered their time to answer the students' questions and to give them tours around the Engineering buildings and the Engineering Library. They also coordinated a Laserama show in which pictures are choreographed with music and laser effects. The Welcome Day proved not only to be an "ice-breaker" for the incoming engineering majors, but also served as a way that some of their questions could be answered.

199 Surveys

Being a highly research-oriented university, UCLA offers numerous opportunities for undergraduate electrical engineers to begin gaining valuable research experience prior to entering the work force or graduate school. One of the most popular is EE199, otherwise known as "independent study". This counts as a class, but is nothing like one in fact. Students hook up with a professor or graduate students working for a particular professor and work under them on a selected research project. Thus, our chapter systematically approached the faculty and asked for a list of relevant research topics. We then compiled this information into a booklet so that other EE students could see at a glance what professors in which fields were available to contact for 199 projects.



HKN Officer Meeting: Thinking up new ideas.

Spice Workshop

With the importance of computers in the workplace today, more emphasis has been placed on computers for circuit classes. One of the popular programs on the market is called SPICE, which is a circuit simulation program that is very popular with many of UCLA's circuit courses. In order to get students familiarized with the program, HKN and several graduate students at UCLA decided to put

together a workshop that would feature SPICE. Some of the students in circuit classes were required to use SPICE even though they had no previous knowledge of the program. Because of this, over 40 students attended the workshop in order to find out more about SPICE.

Lab Nights

A traditional service the Iota Gamma Chapter sponsors is opening the circuit laboratories to students who want or need to use the facilities. This year, the officers manned the lab stockroom each quarter from 3rd to 9th weeks Wednesday night from 4 to 7 p.m. This activity gives students who were not able to complete their labs a chance to finish their work, double check their results, or work on individual projects.

FALL/SPRING INITIATION

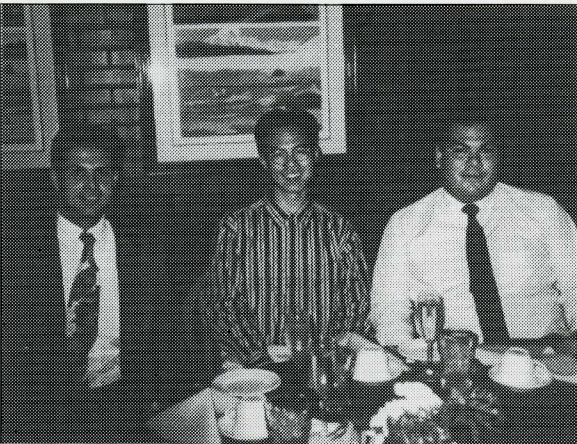
Each year, the Iota Gamma Chapter holds two initiation ceremonies, once in the Fall quarter and once in the Spring quarter. In order to become a member, the candidates were required to complete a number of projects to demonstrate their desire to join HKN and their commitment to the engineering profession. This year, the requirements for the Iota Gamma Chapter included the following projects:

Interview an EE Professor

This traditional project gave an opportunity to each candidate to meet a faculty member and become familiar with his or her academic and professional careers, research projects, and even his or her social life. We felt this requirement was necessary because many students rarely speak with professors and are intimidated by them. In this way, our chapter attempts to show students that faculty members are just ordinary people which in turn improves student/faculty relations.

Letter of Recommendation

One of the most important things that an undergraduate needs to accomplish on his way to obtaining a decent job, internship, scholarship or admission into graduate school is a letter of



(L to R) HKN Alumni Bruno Garlepp, Marc Ibanez, and Juan Garcia at the Spring banquet.



HKN Alumnus Charles Pickman



Dr. O. Stafsudd and wife enjoying a drink at the banquet.

IOTA GAMMA'S FINANCIAL REPORT (1993-94)

Beginning Balance	544.37
Income	
ESUC Funding	500.00
Corporate Support	2250.00
Bake Sale	300.00
T-shirt sale	165.00
Resume Book Donations	550.00
Initiation Fees	3045.00
Expenditures	
National Initiation Fee	950.00
Pins	375.00
Initiation Banquets	1875.84
Food/Drinks for events	1365.73
T-shirt purchase	363.72
Resume Book printing	182.00
Wheatstone Bridge Casting	200.00
Other	83.84
Ending Balance	1958.24

recommendation. The candidates were required to write a letter of recommendation about themselves. This gave them an opportunity to see exactly what strong characteristics they possessed and what areas they were weaker in.

Survey Counting

Due to the large number of EE surveys that were distributed, it was necessary to have a large group of people to tally them. In this case, the bulk of the work fell to the new candidates. Again they were required to spend a few hours recording the results of the survey.

INITIATION BANQUET/10th ANNIVERSARY

After the initiation, the new members were taken out to celebrate their induction into Eta Kappa Nu. The Fall Banquet was held in the heart of Westwood at Monty's Steakhouse, with Drs. Joshi, Viswanathan and Willson as honorary guests.



devoured, and Dean Willson and Professor Kang Wang both gave speeches.

At both banquets, the mood was festive and the students relaxed as they got to talk to the professors in a more informal setting. Once out of their "element", the professors seemed to be just another one of the students (albeit much more knowledgeable!). The professors told jokes, spoke of their experiences in different countries and gave students an idea of what goes on behind the scenes in the EE department.



Dean Willson, Dr. G. Pottier, and Dr. M. Werter



Steven Chin, Ali Niknejad, and Dr. M. Wu enjoying drinks at the Anniversary banquet



Dr. and Mrs. O. Stafsudd, Chairman K. Wang, Dr. E. Yablomovich, and Ezekiel Kruglick have a few laughs over dessert at the Spring 10th Anniversary Banquet.

MERRY MOMENTS WITH MARCIA



The little boy and his parents were dinner guests at the home of a family friend. He was having some difficulty cutting the meat and was asked by the hostess if he needed help. "Oh, no," he replied, without looking up from his plate. "We often have it this tough at home."

\* \* \* \*

A man walked into a restaurant in a strange town. The waiter came and asked him for his order. Feeling lonely, he replied, "Meat loaf and a kind word." When the waiter returned with the meat loaf, the man said, "Where's the good word?" The waiter put down the meat loaf and sighed, bent down and whispered, "Don't eat the meat loaf."

\* \* \* \*

A six-year-old ran up and down the supermarket aisles shouting frantically, "Marian, Marian." Finally reunited with his mother, he was chided by her, "You shouldn't call me 'Marian,' I'm your mother, you know." "I know," he replied, "but the store is full of mothers."

Don't worry about avoiding temptation, as you grow older, it starts avoiding you.

\* \* \* \*

It was a Sunday afternoon and the guy had been watching football on TV, one game after another. Finally he fell asleep in the chair and slept there all night. When his wife arose in the morning, she was afraid he'd be late for work. "Get up, dear," she said, "it's twenty to seven." In an instant, he was fully awake. "In whose favor?" he shouted.

\* \* \* \*

"I want your driver's license," the officer said. "This is your library card." "I know. I'm looking for my license," replied the driver. "I just thought you'd like something to read until I find it."

by the late MARCIA PETERMAN...  
(rediscovered in historic BRIDGE files)



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