

Nicholas A. Peppas

of the University of Texas at Austin

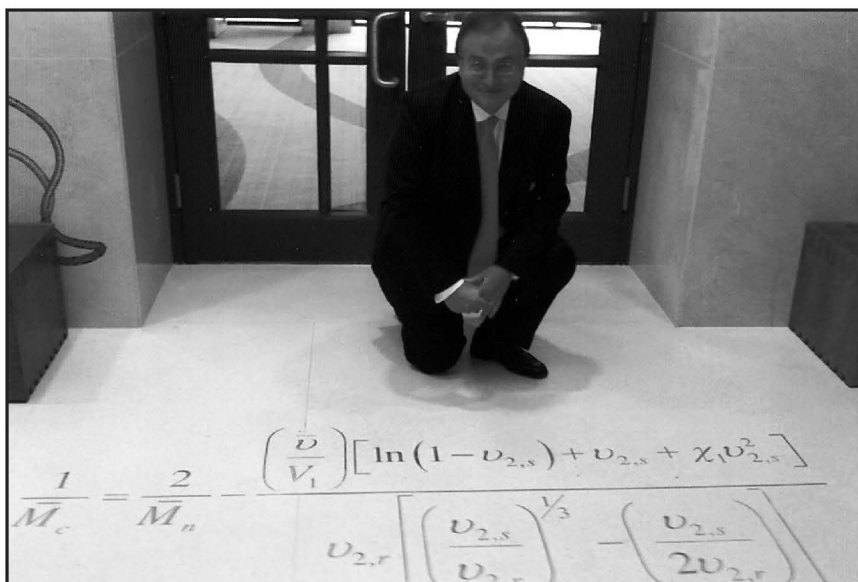
JENNIFER SINCLAIR CURTIS
AND CHRISTOPHER N. BOWMAN

It is quite rare to encounter a person with a commitment to excellence that spans the personal and the professional, education and research, science and engineering, fundamentals and applications, chemical engineering and the broader academic fields, and language and culture. Nicholas A. Peppas is just such an individual, having made exceptional contributions with breadth and depth that span the chemical engineering field. Were one to write an article that described each award and recognition that he has received in even the briefest manner, it would readily fill this issue of *Chemical Engineering Education*. While if one allowed each of the undergraduate and graduate students whose lives he has touched to write briefly about Nicholas's influence on their careers, it would span numerous issues. By committing himself to quality and strongly supporting those who come into his sphere of influence, Nicholas Peppas shines in every aspect of his life.

THE EARLY YEARS

Nicholas A. Peppas was born on Aug. 25, 1948, in Athens, Greece. He was the eldest of two children born to Athanasios and Aliko Peppas. His parents were educated in economics and classics and taught him at an early age to appreciate classical education as well as learning and discovery. They stressed balance in life and also modeled perseverance, hard work, and dedication to life goals that remain hallmarks of his personal traits to this day.

Early on, Nicholas was fascinated with medicine and the inventions of the pioneers in engineering, while simultaneously

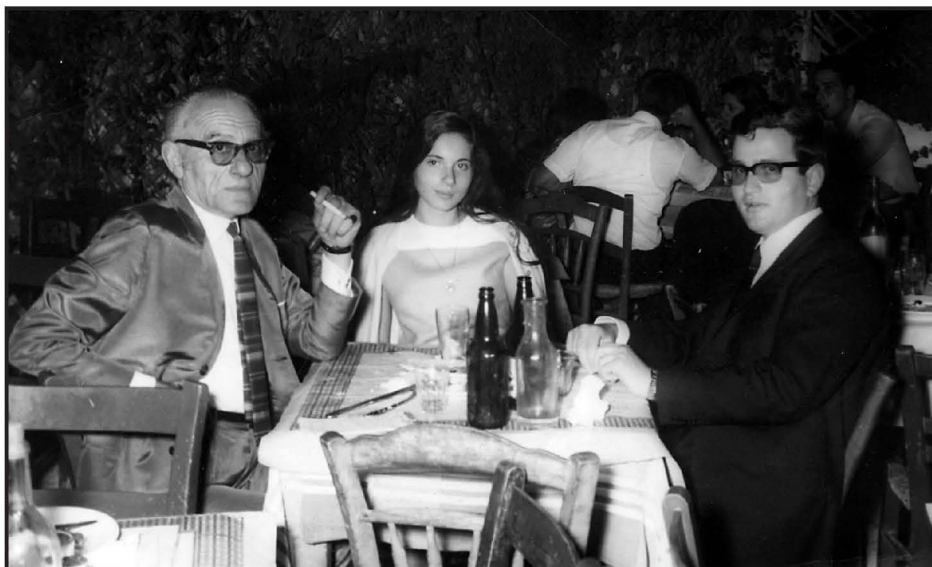


Nicholas poses above the Peppas-Merrill equation for the analysis of gels, which is engraved in an entry of the atrium of the new BME Building at the University of Texas.

developing a passionate interest in opera. While in high school he studied Byzantine music in the Hellenic Conservatory of Music, and he also began his studies of Greek and Byzantine history. His interest in history was initiated through the influence of several family members who were archaeologists or historians, including his father.

Knowing that he did not want to practice medicine, Nicholas decided to pursue engineering and he received his Dipl. Eng. degree in chemical engineering at the National Technical University of Athens in 1971. Although he worked in industry for all three summers during his undergraduate days (including a stint with Shell in Rotterdam, the Netherlands), he chose an academic career. His family has a rich history of academicians with professors of chemistry, history, and plant physiology, as well as archaeology—going back to Göttingen, Heidelberg,

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Left, in the summer of 1954, 6-year-old Nicholas rides his favorite American bicycle—sent from New York by his aunt. Right, in 1959, standing amid confetti from Carnival in Athens. Above, with his father, Nassos, and sister, Louiza, in the summer of 1970, Athens.

and Königsberg—so this was a very natural path for him. Before he left Greece in 1971, he knew he wanted to do something novel and unusual

in his career, and to practice it as a pioneer in the field. He emigrated to the United States at the age of 22 and continued on for graduate work in chemical engineering at the Massachusetts Institute of Technology. He chose to work in the research group of Edward W. Merrill, a great role model, AIChE Founders' Award recipient, and pioneer in the field of bioengineering—a field that combined Nicholas's love of both engineering and medicine, as well as his strong desire for the novel and unusual. For his research, Nicholas worked on developing a series of nonthrombogenic biomaterials that could be used for artificial organs.

Nicholas continued with his balanced interests during his graduate school days and pursued a minor in comparative linguistics with studies of French, German, Italian, Spanish, Dutch, and Russian. Nicholas spent a little over two years in graduate school, receiving his Sc.D. degree in chemical engineering in October 1973. The highly remarkable speed with which he completed his Ph.D. was just one of the early indications of the amazing productivity and impact that characterizes his entire career. While at MIT, he became best friends with classmates Mike Sefton (a fellow Ph.D. student in Merrill's group, now a professor at the University of Toronto) and Bob Langer (a Ph.D. student in Professor Clark Colton's labs and now a professor at MIT). Along with sharing lofty research interests, in their down time all three cultivated a keenness for two simpler things: ping pong and ice cream. The odd combination added up to many good times, and his deep friendship with these two individuals endures to this day.

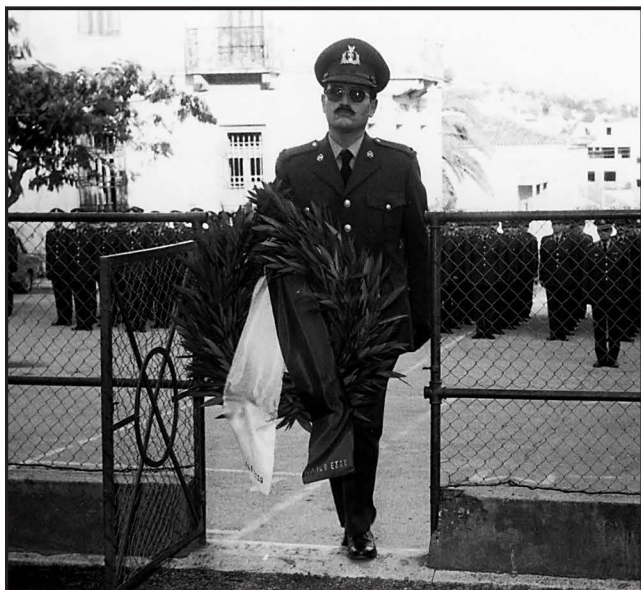


After finishing at MIT, Nicholas did two years of military service as a second lieutenant in the Greek Army. At this point, Nicholas was completely sure that he wanted to get more involved in biomedical engineering. So, he returned to MIT as a research associate

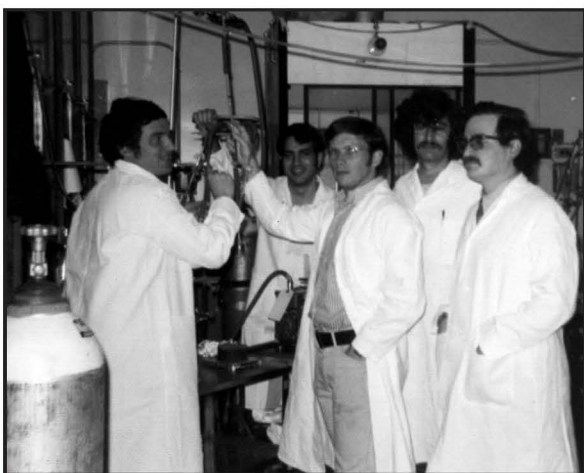
in the Department of Chemical Engineering and the Arteriosclerosis Center, serving as a post-doc with Clark Colton (himself a former Ph.D. student of Ed Merrill) and Ken Smith. His research involved understanding the mechanisms of arteriosclerosis—how the transport of blood and the cholesterol and lipoprotein components in the blood contribute to plaque formation.

PURDUE UNIVERSITY: 1976 - 2002

Following his post-doctoral appointment at MIT, Nicholas was committed to a career as a faculty member in chemical engineering, seeking the opportunity to perform research while simultaneously educating students in the classroom and in the laboratory. From his first day at Purdue through today, Nicholas has been committed to education, research, and the general improvement of his profession.



Above left, Nicholas as a second lieutenant in the Greek Army in 1974. He served two years following completion of his Ph.D. Below left, lab mates in Ed Merrill's lab at MIT in 1972 (from left to right, Steve Rose, Hussein Banijamali, Tim Burke, Mike Sefton, and Nicholas). Above, as a young assistant professor at Purdue, 1976.



Nicholas was hired at Purdue as an assistant professor in 1976 and rapidly promoted to associate professor after just two years. His research program began by looking at two themes that continue through his research today. Todd Gehr (now head of nephrology at Virginia Commonwealth) and William Bussing (until recently a VP of BP in Singapore) completed their master's theses under Nicholas's supervision in 1978, with both doing polymerization reaction engineering—including in Bussing's thesis an examination of the importance of crosslinking reactions, while Gehr's thesis examined copolymerization reactions appropriate for hydrogel production and subsequently developed techniques for heparinizing these hydrogels to improve biocompatibility. Simultaneously, Nicholas was initiating programs on diffusion and mass transfer in polymers and membranes, including his first Ph.D. student, Ming-Shih Yen, who was jointly supervised by Prof. Schoenhals in mechanical engineering.

By 1982, Nicholas had been promoted to full professor and his first batches of chemical engineering Ph.D. students began to graduate. The cohort of Lucy Lucht, Richard Korsmeyer, and Donald Miller completed their doctoral theses in 1983 and 1984 in research themes that focused on applying the fundamentals of polymer science and transport phenomena to fields as broadly ranging as the macromolecular structure of coal, synthetic gels, solute release, and biocompatibility. These first doctoral students represented only the tip of the iceberg, as Nicholas has now supervised 83 completed doctoral theses. Further, along with Robert Gurny (a post-doc who started in 1977) these students and Nicholas were building the foundation of and initiating his work in the fields for which he has become best known: biomaterials, controlled drug delivery, and hydrogels. Throughout the late '70s and early '80s, Nicholas worked extensively on enhancing the fundamental understanding of transport phenomena in polymeric materials. In particular, Nicholas worked to develop and apply knowledge of how penetrants are transported through polymer networks where the size of the diffusing molecule relative to the mesh size of the network dictates transport. Further, in work begun by Richard Korsmeyer and Jennifer Sinclair (an undergraduate researcher at the time) and followed up on by many others through the years, Nicholas analyzed the transport of penetrants into glassy polymers. Here, the transport relationships are dramatically complicated by the strong concentration dependant diffusion coefficient, arising from the glass transition that occurs in the polymer.

In 1982, he went to the University of Geneva as a visiting professor and was also selected to be the editor of the journal *Biomaterials*—a position he kept for 20 years, transforming the publication into the premier journal of the field. His work during this period was highlighted by the completion of Raymond Davidson's doctoral thesis



Above, Nicholas poses with best buddy Bob Langer, left, and Bob's wife, Laura, at the first U.S.-Japan Drug Delivery Meeting, in Maui, Hawaii, in 1991. Above right, Nicholas and Lisa with Terry Papoutsakis in Basel, Switzerland, in August 1988—just days after Nicholas and Lisa's wedding, in which Terry served as best man.



in 1985 that provided a foundation from which to predict drug release from swollen polymeric systems and drug-delivery devices. The targeted application of this work was the burgeoning field of controlled drug delivery that Nicholas was leading along with his good friend (and fellow fan of ping pong and ice cream) Bob Langer at MIT.

In the early to mid 1980s, Nicholas recruited an exceptional group of students that comprised Andy Tsou, Tony Mikos, Ronald Harland, Steven Lustig, Lisa Brannon, John Klier, and Alec Scranton. Nicholas worked with these students to expand the breadth and depth of his impact by focusing on hydrogel materials and transport phenomena in glassy polymers. He examined the formation and network properties of the hydrogel through reaction engineering and structural modeling of the polymer network while extending his previous work to examine the effects of pH, hydrogen bonding, and various other intra- and intermolecular interactions that could be used to control drug release from or swelling in these hydrogel materials. From the early to mid 1980s Nicholas was developing smart, responsive hydrogels that were ultimately used to produce pH- and temperature-sensitive polymer networks for the delivery of streptokinase and other enzymes. At this same time, in 1984 Nicholas's parade of awards began in earnest as he was selected to receive the Materials Engineering and Sciences (now CMA Stine) Award from the American Institute of Chemical Engineers in recognition of his outstanding contributions to materials science. A few years later he also received the Food, Pharmaceuticals, and Bioengineering Award of AIChE.

In the 1986-87 academic year Nicholas took sabbaticals first at the University of Paris, then at the University of Parma,

where he was a visiting professor. At Parma, Nicholas established one of his longest and most productive collaborations, with Professor Paolo Colombo—a collaboration that has produced more than 25 refereed journal articles and several jointly supervised students and student exchanges.

At around this same time of the late 1980s and early 1990s Nicholas's group underwent another major expansion with more than 20 graduate students and post-doctoral researchers in the laboratory at various times during this period. His group also led the field into several new areas by beginning research projects focused on bionanotechnology and molecular imprinting, while significantly expanding his focus on controlled drug delivery by targeting several specific diseases and clinical needs. His program was recognized repeatedly throughout this period with numerous awards, including the 1988 American Society for Engineering Education's Curtis McGraw Award for Outstanding Research that is awarded to the most outstanding researcher from any engineering discipline under the age of 40. Nicholas also was recognized for his excellence by several nonengineering organizations during this period—a testament to his focus on interdisciplinary work that has broad impact across traditional boundaries. The awards include the Controlled Release Society's Founders' Award (1991), the Society for Biomaterials Clemson Award for basic research (1994), the Research Achievement Award in Pharmaceutical Technology (1999), and the Dale Wurster Award from the American Association of Pharmaceutical Scientists (2002). Purdue recognized Nicholas by naming him the Showalter Distinguished Professor of Biomedical Engineering in 1993, and in 1999 and 2000 Nicholas received honorary doctorates from the Universities of Ghent, Athens, and Parma in recognition of his distinguished career-long achievements and his valued contributions to those institutions.

THE UNIVERSITY OF TEXAS AT AUSTIN: 2003—PRESENT

During the 2002-03 academic year, Nicholas sought a change in direction for a variety of personal and professional reasons and found the ideal fit at the University of Texas at Austin. There, in 2003, Nicholas became the Fletcher Stuckey Pratt Chair with appointments in the Departments of Chemical Engineering and Biomedical Engineering as well as the College of Pharmacy. His move was bittersweet, with fond memories and strong collaborations at Purdue but with exciting opportunities availed by his new location and colleagues.

At Texas he made the transition as smoothly and as rapidly as possible, transferring many students and picking up new ones such that he has already had more than 10 students complete their doctoral theses at Texas in just six years there. Nicholas's research programs have also taken on new and expanded directions since his move, although he has continued to focus on biomaterials. In particular, his work on molecular imprinting and selective molecular capture and release from synthetic hydrogels has led to great successes in intelligent polymer therapeutics. A recent focus of his group is the combination of hydrogel technology with micro- and nanotechnology for single cell delivery devices, for biomimetic systems, and for nanovalves and other micro- and nanostructures.

Since his move to Texas, the national and international recognition of Nicholas's research accomplishments has been astounding. He has been elected to the National Academy of Engineering (2006), the Institute of Medicine of the National Academies (2008), and the French Academy of Pharmacy (2005), in addition to receiving the AIChE William Walker Award (2006) and the Jay Bailey Award (2006), and being named the Institute Lecturer by AIChE (2007) and receiving its Founders' Award (2008). Last year he was also selected one of the 100 Chemical Engineers of the Modern Era by AIChE and became an associate editor of the *AIChE Journal*. Nicholas also received the 2008 Pierre Galletti Award from the American Institute of Medical and Biological Engineers. This is the highest award given by this organization, recognizing exceptional career achievements in the medical and engineering arenas.

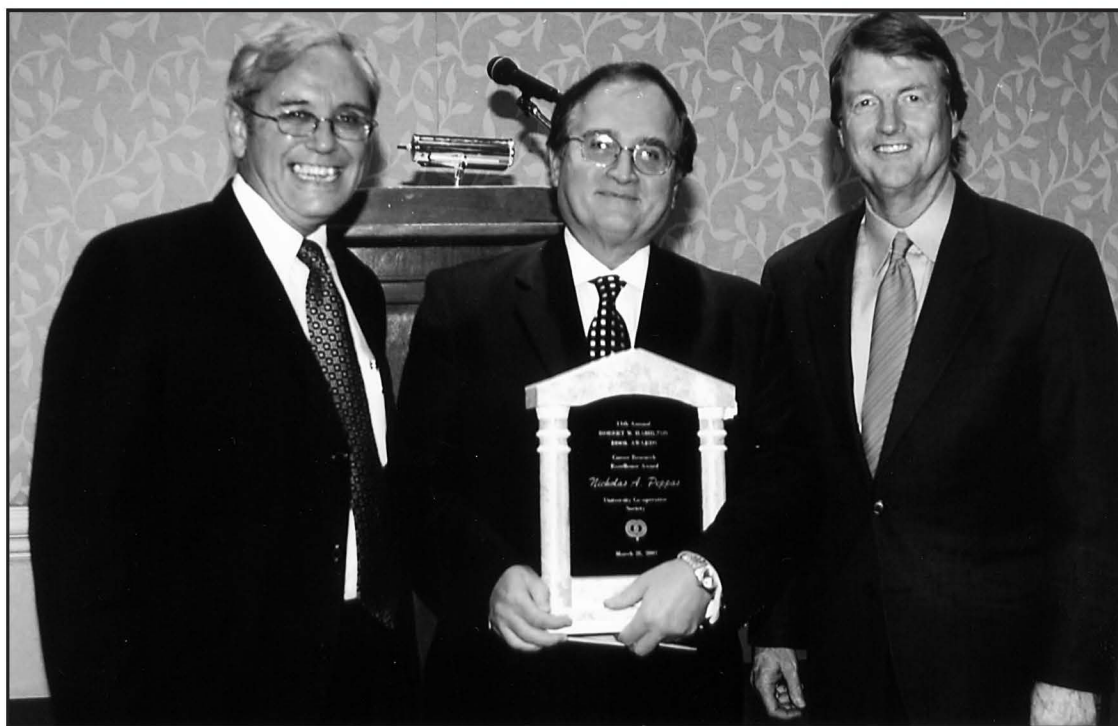
Over the course of his career, Nicholas has established himself as one of the preeminent polymer scientists and biomedical engineers of our time, particularly in the area of creating new fundamental knowledge in regard to polymer science and engineering and subsequently translating those results into practical knowledge and viable commercial systems. As noted, Nicholas's ability to apply polymer science to a wide variety of bioengineering fields has been recognized by numerous international, interdisciplinary organizations. In fact, the interdisciplinary nature of Nicholas's work is highlighted by his selection as a fellow of nine diverse organizations that span engineering, science, physics, materi-



Nicholas, circulating amid the hundred guests at his surprise 50th birthday party in 1998, passes the table of friends and colleagues Balaji Narasimhan of Iowa State and Mike Sefton of the University of Toronto.

als, biomaterials, and pharmacy, while also being named a founder of three of these organizations (AIChE, the Society for Biomaterials, and the Controlled Release Society). He has regularly demonstrated a unique talent for achieving significant fundamental insights into polymer materials fabrication and modification, polymer thermodynamics, polymerization kinetics, and transport behavior—and then applying that knowledge to the development of improved materials, material performance, and biomedical devices. Nicholas's ability in this area is highlighted by the more than 1,000 manuscripts that he has published, the more than 18,000 citations of his work, his H-factor of 72, and his impact on practical devices and companies.

Nicholas's fundamental achievements have been translated into more than 20 commercial medical products, each in collaboration with his students and frequently with others as well. For example, he has developed, patented, and/or commercialized materials for vocal cords, intraocular lenses for cataract patients, nanodelivery systems for oral administration of insulin to type I diabetic patients, systems for oral delivery of calcitonin for treatment of postmenopausal women suffering from osteoporosis, and devices for oral delivery of interferon-beta for multiple sclerotic patients. His work with Professors Colombo and Conte in collaboration with several companies has resulted in hydrogel controlled-release devices, and his more recent work at UT has led to the Affinimer™, TheraSmart™, TabletSmart™, BeautySmart™, AppiForm™,



Nicholas, center, receiving the 2008 Career Research Excellence Award—the highest UT recognition for a professor. Flanking him are University of Texas Vice President for Research Juan Sanchez, left, and University of Texas President William Powers, right.

and other technologies for smart, programmed, and responsive/cognitive delivery of drugs, proteins, and cosmetic and consumer products.

Nicholas's research record obviously places him at the absolute top of his peers in this generation of polymer and biomaterials researchers—yet that is only one of his many contributions to our field. Nicholas has trained more than 95 past or current Ph.D. students and hundreds of undergraduate researchers. These students have gone on to have an ever-expanding impact on the chemical engineering, polymer science, pharmaceutical engineering, and biomaterials fields, with more than 30 having entered academia and numerous others having become corporate leaders. In just the last eight years, Nicholas's former students have received five different AIChE Institute-level awards, and the 2008 and 2009 ASEE Chemical Engineering Lectureships have both been awarded to former undergraduate or graduate students of his. In conversations with Nicholas, it is clear that his greatest pride lies in his students—those he has advised in the lab as well as those he has taught in class.

COMMITMENT TO EDUCATION

At work, first and foremost, Nicholas is committed to students and their education. In a recent interview for the January 2009 issue of the *Controlled Release Society Newsletter* (to go along with his 2008 election to the Institute of Medicine of the National Academies of Science), Nicholas was asked what he regarded as his most significant achievement of his career. His response was “my contribution to the education of the younger generations of chemical engineers, biomedical

engineers, pharmaceutical scientists, and especially industrial and academic leaders in drug delivery, controlled release, biomaterials, and nanobiotechnology.” Anyone who has participated in his research group or has ever been a student in one of his classes can verify how his actions line up with his answer to the interviewer's question.

In the classroom, he is a very animated teacher and his lectures incorporate the latest research advances. Students in his classes learn first-hand how fundamental knowledge of engineering concepts can translate to products or devices that help people and society. Because he conveys such excitement for learning and discovery, students are highly engaged in his classes and are eager for knowledge. As a result of his excellence in classroom instruction, Nicholas has received numerous teaching awards including the engineering-wide teaching award at Purdue (the Potter Award) three times, and the chemical engineering department teaching award at Purdue (the Shreve Award) five times. In 2007 he was voted the “Best Faculty Member in Chemical Engineering” by the students at UT-Austin.

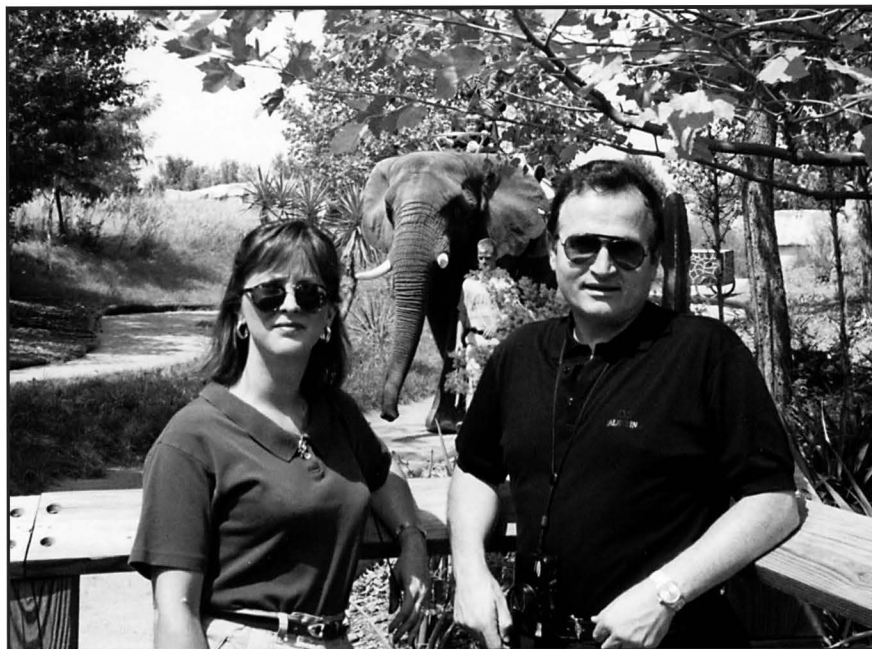
In addition to authoring more than 20 educational papers, Nicholas has combined his love of history and chemical and biomedical engineering by writing several historical books and articles on the chemical and biomedical engineering profession. One of his first history books along this line was a book about how chemical engineering developed at Purdue and what Purdue's contributions were to the chemical engineering field. This book was published in 1986 on the occasion of the 75th anniversary of the department. After that, Nicholas started to write books and articles on how the fields of chemical

engineering and biomedical engineering developed, including his 1988 Kluwer book, *History of Chemical Engineering*. Just last year, he completed another article, “The First Century of Chemical Engineering,” for the Chemical Heritage Foundation and the AIChE Centennial celebration.

Not only is Nicholas an excellent teacher, but as a mentor and advisor he is unsurpassed. Undergraduates flock to his research group; they want to be a part of the excitement. He takes in students who know nothing about research or academia, but are interested in learning. Not only does he actively mentor them in technical matters, he cares about their families, their personal lives, and their aspirations. Due to his holistic approach to advising, and perhaps in part because of the nature of his research field, Nicholas’s group is always filled with female students. It has been that way even since the early days of his independent research program in the late 1970s, when it was very rare to find any females at all in chemical engineering research. With his continuous, lifelong support and mentoring, many of Nicholas’s female students have gone on to the very top positions in industry and academia. He has always been one to lead the way in breaking the glass ceiling!

To date, more than 500 undergraduate students have participated in research projects supervised either directly by Nicholas or by one of his graduate students. This number is staggering and shows his unwavering commitment to enhancing the quality of undergraduate education through the involvement of chemical and biomedical engineering undergraduates in research. The undergraduates who work in his research group get a taste of all of the same experiences as his graduate students—undergraduate students are co-authors on his journal and conference publications, present at national scientific meetings, and even participate in proposal preparation. Five of Nicholas’s patents even have undergraduates as co-inventors! When undergraduates are brought into Nicholas’s group, they are treated as full members of the research team and are expected to perform as such. They are given a defined project and a high level of responsibility. Because of this approach, students typically rise to the challenge and learn to become productive and effective researchers. Nearly two-thirds of all students participating in Nicholas’s group have gone on to further their educations with an advanced degree.

For his successes in mentoring and advising, he has received the Myron Scott Best Counselor Award at Purdue and the national AIChE Counselor Award associated with his service as the faculty advisor for the Purdue AIChE Student Chapter for



Lisa and Nicholas at the Indianapolis Zoo in 1996. Both are avid supporters of various zoo projects and efforts to protect endangered species.

15 years. The American Society for Engineering Education has also recognized him with all its major awards including the 1992 George Westinghouse Award for teaching, the 2000 General Electric Senior Research Award, and the 2006 Dow Chemical Engineering Award for both educational and research accomplishments, as well as election as an ASEE fellow in 2008.

Nicholas’s mentoring and connectedness with his students do not end when a student graduates or leaves his group. He proactively keeps up with his former students’ careers and personal lives via periodic “what’s up?” / “how are you doing?” e-mails and phone calls. He will always do whatever he can to help a former student at any time in their career if they call on him for assistance. Nicholas also keeps his former students—affectionately known as “peppamers”—connected with each other. He sends out regular e-mail blasts to his students letting the others know about any successes or recognition any one of them has achieved.

Because Nicholas gives so much of himself to his students, he is very much loved and honored in return. For his 50th birthday in 1998, about 100 friends and former students gathered in Indianapolis for a surprise party. Recently, for his 60th birthday, a research symposium and party in his honor was held at the University of Texas at Austin and was attended by more than 200 people, many from his MIT and Purdue days.

NICHOLAS AND LISA—THE DYNAMIC DUO

Nicholas met his wife Lisa when she (then Lisa Brannon, now Lisa Brannon-Peppas) was enrolled in the Ph.D. program



Pride and joy: Nicholas with his children, Alexi and Katia.

in chemical engineering at Purdue. They were married in 1988 after she completed her degree. Nicholas will readily tell you that not only does he love Lisa deeply, but that he is also madly “in love” with her even after all their years of marriage. Nicholas and Lisa make quite a team as two ambitious and highly successful chemical engineering professionals. As Nicholas told *AICHE Extra* in a Chemical Engineering Progress article (February 2000), “I am very, very lucky to have met Lisa in that respect. When I go home, I am grateful to have someone I can share my work with.” They both agree that science is certainly one of the big topics that comes up at the dinner table.

After finishing her Ph.D., Lisa worked at Eli Lilly for three years. She then founded her own company, Biogel Technology, Inc., in 1991, where she served as president for 11 years. During that time, she made significant research contributions in the areas of biomaterials, controlled drug delivery, drug targeting, biodegradable materials, and the structure-property relationship of polymers. One of her key accomplishments was developing targeted delivery systems to treat breast cancer using biodegradable nanoparticles. In 2003, Lisa also joined the University of Texas at Austin faculty, as a research professor and as director of the Center of Biological and Medical Engineering. While there, she received a biomedical engineering department teaching award as well as several research awards for her work in biomaterials. In 2008, Lisa decided to leave academia and is currently vice president of Appian Laboratories, LLC, in Austin.

Lisa is a fellow of the American Institute of Medical and Biological Engineering (in fact, she was the youngest fellow ever elected



Nicholas and Andreas Acrivos (of CUNY), two of the prestigious list of “100 Chemical Engineers of the Modern Era,” honored at the AICHE meeting in 2008.

to the Institute at the time of her election) and a fellow in biomaterials science and engineering of the Society of Biomaterials. Most recently, she received the very prestigious national 2008 AICHE Award in Chemical Engineering Practice for outstanding contributions in the industrial practice of the profession—right alongside Nicholas, who received the 2008 AICHE Founders’ Award for outstanding contributions to the field of chemical engineering. Nicholas and Lisa have both served as directors of AICHE as well as chairs of the Materials Engineering and Sciences Division of AICHE. They truly are a dynamic duo!

Besides Lisa, the deepest joys in Nicholas’s life are his children Katia (Katherine), an 8-year-old, and Alexi



A lifelong lover of opera, Nicholas poses outside the entrance to an opera concert in Busseto, Italy, prior to attending the event on the exact day of famed composer Giuseppe Verdi's centennial.

(Alexander), who is 5. Nicholas is very clear—no matter what the demands on his time, his family always comes first. So that Nicholas can spend more time with his family, he has become very judicious in his choice of opportunities to travel.

Nicholas and Lisa have an active social life with many interests. They are avid supporters of various zoo projects including the protection of endangered species. Before kids, their travel schedule was extensive—many wonderful sites and much fine cuisine. An itinerary incorporating trips to places like Paris, Las Vegas, and Japan back-to-back was not uncommon. Now, family travel typically involves trips to the beach with lots of sun, sand, and swimming. They also take a family vacation to Maui, Hawaii, every other year along with their participation in the U.S.-Japan Symposium on Drug Delivery Systems.

AWAY FROM WORK

Nicholas is a true renaissance man. His interests are unbelievably broad with music and history dominating the scene. For music, opera is his love and helps him relax. As Lisa says, "He'll drop any chemical engineering project for opera." Nicholas has spent more than 40 years writing about Italian, French, and romantic German opera. He has published hundreds of critiques, essays, and articles on opera and classic music performances on various Web sites and in magazines including *Fanfare*, *High Fidelity*, *Stereo Review*, *International*

Opera Record Collector, and *The Record Collector*. He has even published two books (*Vasso Argyris: The Great Greek Tenor of the Interwar Years* and *Greek Light Music of the 1935-1975 Period*).

For history, his main interest is the Byzantine Empire based in Constantinople, especially the period of 976 to 1025, which is in the middle of a series of emperors known as the Macedonian Dynasty. He has published 26 articles on the Byzantine Empire, the history of Attica, and related subjects. Another historical topic of key interest for Nicholas is ocean liners and 19th- and 20th-century immigration to the United States. He has written some 300 short articles on these topics in various sites.

Nicholas has also contributed articles to various literary journals and newspapers. For example, he was a major contributor to the 1968 and 1978 *Tourist Guides of Greece* (Institute of Tourist Publications, Athens, Greece). He has also contributed articles in the magazines *Eleusinian* and *Hellenic Chronicle*, and the Greek newspapers *Daily* and *The Tribune*.

Nicholas speaks Greek, French, German, Italian, and Spanish, can read/write in Russian, Portuguese, and Dutch, and can read several other languages. He has even taken classes in Hebrew and Japanese (especially because of his sabbatical leaves to Hebrew University and Hoshi University) although he admits these are extremely difficult languages for him. Aiding Nicholas in his mastery of all of these languages is his encyclopedic memory. Lisa says that the only thing he ever forgets are the items he hints at during the year that he might like for Christmas presents. Therefore, when he receives his presents at Christmas, they are a surprise to him! Lisa also says that Katia appears to have inherited Nicholas's encyclopedic memory, but does not forget about her Christmas present hints! Nicholas's organizational skills are also incredible—these skills go hand-in-hand with his amazing productivity and memory. He believes there is a place for everything and everything in its place. He can lay his hands on any piece of paper or any electronic file within seconds.

Nicholas is a collector of opera and classical music CDs. Lisa says that if there were space, he would have a CD of every opera ever published. Other extensive collections include operatic 78-rpm records—including many rare records from the period of 1898 to 1912—history books in every possible language, nutcrackers, and old maps.

Also among his collections is an assortment of silver serving pieces. Nicholas actually likes cleaning them. While others might dread the tedious task, carefully polishing each piece pleases him, he says, because he very much appreciates seeing the results of his labor—fine silver with a beautiful shine. For an educator, mentor, and researcher for whom the success of his students is the brightest reflection of a brilliant career, it's a fitting image. □