

## Don Paul: 60 Years in Research and Education

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It is a distinct honor to introduce this *I&EC Research* Festschrift celebrating our friend, mentor, and colleague, Professor Don Paul. This special issue is a tribute to Don from former students and academic collaborators, on the occasion of his 80th birthday and in recognition of his tremendous contributions to chemical engineering and materials science. Don was born on March 20th, 1939, on a farm in North Carolina. He received his B.S. degree in chemical engineering from North Carolina State University in 1961. In the early 1960s, following significant progress in the previous two decades, polymer science was taking off. In this regard, the first Nobel Prize in the field of polymer science and technology was awarded in 1963, when Don was a Ph.D. student. Don was able to foresee the importance that polymers would gain in the years to come. Specifically, he realized that, before society could fully benefit from these new materials, substantial, fundamental research would be necessary. From then on, Don's entire professional life focused on the study and application of polymeric materials. After earning his Ph.D. at the University of Wisconsin, Don worked for two years as an R&D engineer in a company, Chemstrand Research, Inc., before joining the faculty of UT Austin on September 1, 1967. There, he established a highly respected program in polymer science that would strongly influence the scientific community for the following decades. He was promoted to Associate Professor in 1970, Professor in 1973, and he was appointed Department Chair for two terms in 1977 and 1981. Don has been active in at least three research areas, i.e., polymer membranes, polymer blends, and polymer composites. Many important scientific discoveries in these areas came from his laboratory. Today, Don is one of the most influential scientists in the world, with more than 700 papers published, which have >50 000 citations (H-index = 109, Scopus). He also edited several books. His book, *Polymer Blends*, is today a classic in the field and has been translated into Russian and Chinese. Don has won virtually every possible award in the field of chemical engineering and polymer science. The first one, in 1973, was the American Chemical Society Arthur K. Doolittle Award for his studies on solute transport in swollen membranes. In 1988, he was elected to be a member of the National Academy of Engineering. More recently, he was named fellow of the North American Membrane Society.

Don became famous in the scientific community in the early 1970s, when he demonstrated that the solution-diffusion mechanism rules small-molecule transport in dense polymer membranes. At that time, it was a common belief that membranes were endowed with small pores where convective transport could occur. Don and his student, Onelio M. Ebra-Lima, conceived a series of elegant experiments and developed

a thermodynamic framework to convince the scientific community of the actual transport mechanism of small molecules in polymers. Shortly afterward, Don and another student from his group, Bill Koros, made important scientific breakthroughs regarding the mechanism of small-molecule transport in glassy polymers, in a legendary paper that has collected over 620 citations. These contributions tremendously helped accelerate progress in membrane science. Don was a consultant for Monsanto when, in 1979, the first membrane plant was launched to separate hydrogen from nitrogen in ammonia synthesis and other applications.

Aside from being an outstanding researcher, teacher, and mentor, Don has been actively involved in the service to the scientific community. Among the other offices, he served as Editor-in-Chief of *I&EC Research* from 1986 to 2014. During this period, he witnessed the revolution produced by the Internet, which completely changed the process of preparing, submitting, reviewing, and publishing manuscripts. In his 28 years of service of Editor-in-Chief of *I&EC Research*, Don managed ~37 500 manuscripts.

Anyone who had the chance to enjoy his friendship, was impressed with his brilliant and crisp personality, his self-discipline, as well as his encyclopedic knowledge of classic music, food, and wine. Don has been married to his wife Barbara since 2003. He has one son, one daughter, and three beloved grandchildren. Since 1968, on occasion of Thanksgiving Day, Don and his family have organized a large party where students, colleagues, and friends are invited. This fact says a lot about how Don cares about people.

In conclusion, Don has started several research lines that, today, are part of all programs in chemical and materials engineering around the world, written several landmark scientific papers and books, and, most importantly, inspired and fostered generations of scientists in the world. Many young professors working on membrane science in U.S. academia come from his school.

Don, on behalf of the entire scientific community, we thank you. One of us (M.G.) counts himself fortunate to have benefitted from your friendship, guidance, and enthusiasm. People who contribute to move the frontiers of knowledge in the field forward are called scientists, and people that, like you,

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produce human capital capable of advancing the knowledge in the field are called leaders. We hope you will continue to inspire the community for many years to come.

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