From Fundamentals to Application: Taking Don Paul's Guidance to Develop New Membrane Materials

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Prof. Paul's impact on the field of polymer science and engineering has been truly extraordinary. The precision and clarity of his work paved the early foundations for standard models now routinely used to guide our understanding of transport, thermodynamics, and materials science as they relate to polymers and composites. Perhaps of even greater importance, Prof. Paul has graciously mentored generations of researchers, and his leadership has broadly redefined the landscape of science and engineering. To highlight Prof. Paul's approach in using fundamentals to target real-world applications, this presentation will describe the use of the solution-diffusion model for the development of new materials for gas-separation membranes. Inspired by Prof. Paul's foundational work in this area, new directions and exciting opportunities in membrane science will be presented.