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It is not easy to write a preface to this *I&EC Research* festschrift honoring Stan Sandler. No short preface can do justice to his numerous contributions to chemical engineering and to his impressive achievements as a person, teacher, researcher, and professional.

Perhaps one measure of Stan's achievements can be assessed by his numerous awards and honors granted for outstanding contributions to the profession. A list of his awards would clearly show the breadth and depth of his impact on chemical technology. Most notable are his election to the National Academy of Engineering (for professional excellence) and the Warren K. Lewis Award (for educational excellence) from the AIChE; these awards illustrate Stan's successful career and exemplify the recognition and appreciation that the community has valued from his contributions.

Stan has had a strong impact on how thermodynamics is applied in chemical engineering practice and how it is taught to chemical engineering students. As a researcher, he has introduced several advances in the theory and application of thermodynamics, including the widely used Wong–Sandler mixing rules and his pioneering efforts toward utilizing modern computational chemistry for understanding how molecular interactions and molecular theory can lead to new applications of thermodynamics. The latter shows Stan's vision to innovate and bring about enriching ideas that connect the microscopic

(statistical thermodynamics) to the macroscopic (classical thermodynamics). The impact of his technical contributions has a pragmatic influence; Stan's technical contributions are available to every practitioner of thermodynamics because the fruits of his research efforts have entered standard procedures and commercial software (e.g., AspenPlus).

Stan has greatly contributed to applied thermodynamics, not only through his research, but also through his teaching. Thermodynamics is perhaps the most intellectually challenging subject in the chemical engineering curriculum. It is for this reason (the challenge to Stan) that his classical thermodynamics textbook is widely used and viewed as a major source of knowledge. With the same vigor, Stan has taken the time to write a second textbook on statistical thermodynamics, illustrating his drive to excel in areas that are often most challenging. Stan has always been keenly involved in chemical engineering education by practicing and advocating new teaching methods to help students understand the importance and practical uses of thermodynamics. A glance at Stan's publication record indicates that he has been busily engaged in advancing the art of teaching.

Stan has also been instrumental in leading and serving the technical community. For those in the field of applied thermodynamics, the Properties and Phase Equilibria for Product and Process Design (PPEPPD) conference is one of the premier gatherings for discussions on a wide range of topics within applied thermodynamics. In 1977, Stan co-founded this inter-

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national conference, which continues to meet every three years, each time in a different location. For the past decade, Stan has had a direct impact on the dissemination of chemical engineering knowledge as the editor of the *AIChe Journal*. Under his leadership, the journal has grown in depth and in variety of technical areas. Stan's numerous visiting professorships reflect his international standing. His service on national technical committees indicates his service to the nation on contemporary matters, such as systematic destruction of chemical-warfare weapons.

All who have had the pleasure of having known and interacted with Stan, it goes without saying that we appreciate his friendship, mentorship, leadership, and stewardship of our profession. We celebrate and recognize Stan's 70th birthday

not only because he has contributed much to chemical engineering, but also because his contributions have reached countless minds and inspired many to choose difficult professional challenges with confidence. Stan, we sincerely thank you and honor you with this special issue as a small token of our gratitude and appreciation for your life-long dedication to our profession and for your dedicated and kind efforts to develop our professional careers.

**Amadeu K. Sum*, Shiang-Tai Lin, and
John M. Prausnitz**

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