

## A Tribute to James E. Bailey

This sixth *AICHE Journal* Founders Tribute recognizes Professor James (Jay) E. Bailey, who was a world leader in biochemical engineering and pioneered the development of metabolic engineering. Jay grew up in Rockford, IL as an only child. He studied chemical engineering at Rice University, and earned his BA in 1966 and PhD in 1969. After working for a short period at Shell Development, Jay joined the Chemical Engineering Dept. at the University of Houston in 1971. Although his initial research activities were on the dynamic behavior of chemical reacting systems, Jay quickly shifted his focus toward the application of chemical engineering to biological systems. The text *Biochemical Engineering Fundamentals* Jay coauthored with David Ollis was the first to include the emerging recombinant DNA technology, and represented a landmark in biochemical engineering education and industrial biotechnology applications.

In 1980, Jay moved to Caltech, where he established himself as a leader in biochemical engineering as he embraced new opportunities in genetic engineering to manipulate cell metabolism and established the field of metabolic engineering. In 1992, Jay moved to the Swiss Federal Institute of Technology, Zurich (ETHZ) as professor of biotechnology. At ETH, Jay was an early proponent of quantitative biology and was quick to develop experimental tools for new quantitative measurements. Jay advised over 100 graduate students and postdoctoral fellows over his 30-year career, many of whom have had exceptional careers in academia and in industry. His impact in fostering their independence, creativity, and passion for research is infectious.

Jay's research contributions have been recognized by numerous professional honors including the Alan P. Colburn Award and Professional Progress Award from AIChE, the Food, Pharmaceutical, and Bioengineering Division Award from AIChE, and the Marvin J. Johnson Award from ACS. He was elected to the NAE in 1986. Jay is remembered today by the Society for Biological Engineering's (SBE's) James E. Bailey Award for Outstanding Contributions to the Field of Biological Engineering, established in 2005.

This tribute issue contains contributions from an invited group of Jay's former colleagues, students, academic offspring, collaborators, and other distinguished faculty from throughout the world, and a Retrospective. The breadth of these contributions reflects the extraordinary and enduring impact of Jay's work in the Biochemical Engineering community. We hope that you enjoy this Tribute to Professor Jay Bailey.

Yours sincerely,



**Wilfred Chen**  
Associate Editor, *AICHE Journal*  
Gore Professor, University of Delaware



**Douglas Clark**  
Dean, College of Chemistry  
Gilbert Newton Lewis Professor,  
University of California at Berkeley



**Michael P. Harold**  
Editor-in-Chief, *AICHE Journal*  
M.D. Anderson Professor,  
University of Houston



**Chaitan Khosla**  
Wells H. Rauser and Harold M. Petiprin Professor,  
Stanford University