

Preface to Perspectives

In 2004 the *AIChE Journal* celebrated its 50th anniversary. In connection with this milestone, a symposium on “The Future of Chemical Engineering Research” was organized at the Annual AIChE Meeting in Austin. The symposium consisted of three sessions entitled:

- Fundamentals
- Biological Engineering
- Complex Systems

In each session seven talks by leading chemical engineers were followed by a three-member panel discussion. A one-person overview that integrated the talks and discussions within the context of our discipline’s research tradition closed the proceedings.

The symposium proved an excellent opportunity for taking a broad look at the current landscape of chemical engineering research, and for thinking about its future. It is clearly impossible to organize three sessions that can provide a comprehensive representation of every important aspect of chemical engineering research. Nevertheless, we believe that the scope and quality of the talks were such that it is of value to our profession to preserve a written record of the symposium. We are delighted that the *AIChE Journal* will be the medium for its publication.

This issue of the *AIChE Journal* features the second collection of Perspective articles dedicated to the 2004 Symposium “The Future of Chemical Engineering Research.” The five articles in this issue correspond to the session on Fundamentals. The session on Complex Systems appeared in July, and the series of Biological Engineering Perspectives will appear in a future issue. We are grateful to the many speakers who were able to contribute to this collection by putting their talks and thoughts on paper.

We feel honored and privileged to have organized the symposium and to edit this collection of papers. The program of the session on Fundamentals is reproduced below.

Pablo G. Debenedetti, Julio M. Ottino, Arup K. Chakraborty

The Future of Chemical Engineering Research
November 8, 2004
AIChE Annual Meeting, AUSTIN, TX

SESSION I: FUNDAMENTALS

Chair: Pablo G. Debenedetti, Princeton University; Co-Chair: Julio M. Ottino, Northwestern University

Polymer Science and Engineering: There is Still Room at the Bottom, and Plenty at the Top
Frank Bates, University of Minnesota

Complex Fluids, Complex Flows
John Brady, California Institute of Technology

Molecular Simulations in Chemical Engineering: a Current View and Future Perspectives
Juan dePablo, University of Wisconsin

Recent Developments Towards the Commercialization of Solid Oxide Fuel Cells
Raymond Gorte, University of Pennsylvania

Nanostructure Processing of Advanced Biomaterials
Jackie Ying, M.I.T.

Chemical Processing of Self-Assembly
Matthew Tirrell, University of California at Santa Barbara

Equilibrium, Dynamics and Time-Dependent Structure: Theoretical Challenges and Opportunities
Pablo Debenedetti, Princeton University

DISCUSSANTS: Alexis Bell (University of California, Berkeley); Morton Denn (City College of the City University of New York); Stanley Sandler, (University of Delaware)

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