

of importance in petroleum refining has been an active area for Ron Danner and Tom Daubert. Three editions of the American Petroleum Institute's *Technical Data Book—Petroleum Refining* have been produced in the department since the project was originated by Merrill Fenske and Walter Braun in the early '60's. Further activity includes the very difficult problem of identifying readily measurable parameters for the characterization of petroleum fractions which are very complex and poorly defined mixtures. Ron and Tom have also been working on the development of generalized corresponding states methods for polar fluids and the measurement and correlation of gas mixture adsorption on solid surfaces.

• Dynamics

Bob Kabel, after developing a thorough understanding of the kinetics of certain acid ion exchange catalyzed reactions, has been using these reactions as a vehicle for understanding reactor dynamics. In particular, he has experimentally demonstrated the potential of forced periodic reactor operation to improve catalyst selectivity. Al Engel has experimentally demonstrated the use of forced cyclical operation of stirred tank reactors

to maintain transients in a neighborhood of an unstable steady state. Al's recent simulation work has shown that cyclical operation of a distillation column may produce energy savings approaching fifty percent of steady state operation for the same separation.

John Tarbell has been working on non-linear stability theory for reaction and reaction-diffusion processes. Liapunov's direct method provides the theoretical framework and irreversible thermodynamics provides an untapped source of Liapunov functions. Bifurcation phenomena, especially bifurcation to periodic and chaotic orbits are also being investigated.

In conclusion, we must emphasize that the success of our research programs has been and will continue to be a direct consequence of the dedication and perseverance of our graduate students. □

BOOK REVIEW: Cellulose

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posium participants were aware of the shortcomings of the enzyme studies. The results presented in these papers lack the *raison d'être* of the $H_2O_2/Fe(II)$ studies, and it is not evident that they can be justified on the basis of Good Science. The chapter about lignin-degrading reactions is interesting, but very speculative. The conclusions that more data are needed and that they should relate to whole organisms rather than isolated organisms, are certainly valid. The summary statement about cellulase enzymes at the beginning of this section is well done, but it is sufficient.

"The Process" is the conversion of cellulose and lignocellulosic materials into glucose (or some other, equally useful product). The excellent chapter about physical and chemical features of cellulose and lignocellulosic materials would be better placed in the section about the substrate. This chapter is informative, and with its emphasis on susceptibility for the process, certainly not out of place where it is. The chapter that follows, also intended to be about the relationship between structure and process susceptibility, is a classic example of the ridiculous following the sublime. To be convinced of the former, one needs only to refer to the last figure and the claim that the different shapes of the curves drawn therein are significant. The chapter on pre-treatment and its

ChE letters

SUMMER ENERGY-RELATED INSTITUTES

Sir:

Oak Ridge Associated Universities will present four energy-related institutes for college faculty this summer. The institutes sponsored by the U. S. Department of Energy, DOE, are designed for faculty who teach or plan to teach energy-related courses. A limited number of stipends are available. The deadline for applying is March 31, 1978. The institutes to be presented are:

ENERGY PRODUCTION AND THE ENVIRONMENT

June 19-July 7, 1978

ENERGY OPTIONS FOR THE FUTURE

July 10-21, 1978

ENERGY CONSERVATION:

THEORY AND PRACTICE

July 10-28, 1978

COAL PRODUCTION AND UTILIZATION

July 31-August 11, 1978

Full information about the summer institutes and application material may be obtained from the Professional Training Programs, Manpower Education, Research and Training Division, Oak Ridge Associated Universities, P. O. Box 117, Oak Ridge, Tennessee 37830.

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