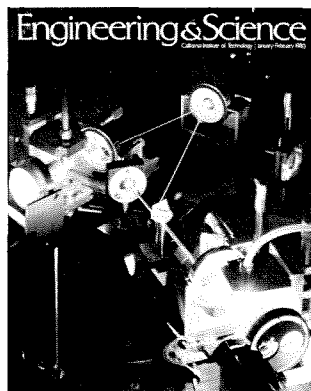


In This Issue



Laser "Alchemy"

On the cover — a view of the laser apparatus and beams of light produced in the laboratory of Ahmed Zewail, associate professor of chemical physics at Caltech. A dye jet stream makes the lasing medium in the cavity. Note the coherent laser beam between the prism (center) and the mirror (below the word "Institute") in comparison



Ahmed Zewail

son with the incoherent emission of the dye molecules at lower right.

Lasers are the tools with which Zewail carries on the research he described in a lecture at the 1979 Research Directors Conference sponsored by Caltech's Industrial Associates. "Laser Selective Chemistry" on page 8 is adapted from that talk.

In addition to his research with lasers, Zewail has done some exciting work in developing a "multiple-dye planar solar concentrator" that will greatly increase the efficiency of silicon solar cells that convert sunlight into electricity. He was recently awarded a \$35,000 Dreyfus Teacher-Scholar grant for "exceptionally promising young faculty members who combine an interest and a demonstrated ability in teaching and performing research."

In some of his lectures, whether the subject is laser chemistry or solar energy, Zewail also has an amazing ability to get in a plug for Egypt, usually saying something about chemistry being "an old field known since the days of the ancient Egyptians" or about Egyptians being the first to worship the sun god Aton. As you might have guessed, Zewail was born in Egypt, and received his BSc from the University of Alexandria. After obtaining his PhD from the University of Pennsylvania, he was a research associate at Berkeley and has been at Caltech since 1976.

Outlook on Energy

Bringing the realities of the energy situation home to the citizens of this country is something of a problem in continuing education — and it is one that the Caltech community is involved in at a number of

levels, including that of the Board of Trustees. The Institute is fortunate that several members of that Board are, because of both opportunity and experience, particularly well qualified to speak knowledgeably on the question. This made it possible and appropriate to assemble five of them into a blue ribbon panel to speak informally about various aspects of the energy problem at the Board's annual three-day fall meeting in October. In "World Energy Perspectives" on page 14, *E&S* presents adaptations of the panel's talks.

The members of the panel itself were Robert O. Anderson, chairman and chief executive officer of Atlantic Richfield Company; Robert S. McNamara, president of the World Bank; William R. Gould, president of Southern California Edison Company; Dean A. McGee, chairman and chief executive officer of Kerr-McGee Corporation; and Simon Ramo, director, and chairman of the science and technology committee of TRW Inc.

At the conclusion of the panel's presentation, Caltech President Marvin Goldberger invited questions and discussion from the floor. A number of trustees responded, including, in particular, William M. Keck Jr., who has been active in the petroleum business for more than 50 years and is currently a director of the Superior Oil Company.

Mr. Keck reacted to the presentations of the panelists by recounting several specific problems of government regulation and current consumer views toward such producing companies as his. He also commented on the potential for development of oil shale deposits in the western states, the potential for coal, and the difficulties of bringing energy supplies from source to market.

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