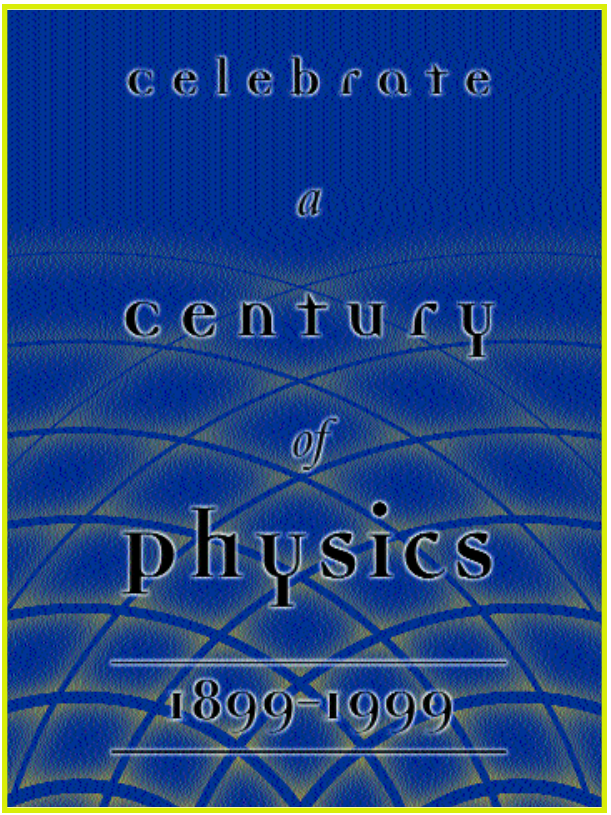
A Centennial Salute to APS



The Forum on Industrial and Applied Physics (FIAP) plans an exciting program for the centennial meeting of the American Physical Society—a lineup of special symposia that will highlight a century of extraordinary contributions by industrial physicists to the nation's scientific, technological, and economic growth.

In its few years as the focal point within APS for physicists working in industry, FIAP has often focused attention on the important contributions of industrial physicists. Much of their work is critical to sustaining the fast pace of technological development and to maintaining the commercial strength of the U.S. economy. The FIAP program planned for the historic APS centennial meeting, which will be held March 20-26, 1999, in Atlanta, consists of nine special invited sessions and one focus session.

The invited symposia begin with a special centennial session entitled "Industrial Research: Past, Present, and Future," chaired by Cherry Murray of Bell Labs/Lucent Technologies. This session will feature the leaders of four major industrial research organizations, whose topics will include the role of physics in communications and the automotive industry, and "Industrial Research: Where Have All the Physicists Gone?"

"Physicists at Startups" will explore the experiences of physicists involved in creating small companies. The symposium, chaired by Wilfried Lenth of IBM Research, includes speakers from a relatively new start-up company (3D Technology Laboratories, Inc.); from a start-up bought by a larger company (Quinta Corp.); from the high-temperature superconductor industry; and from a computer networking firm. Duncan MacVicar, author and Silicon Valley consultant, will give a broad perspective in his talk "Starting Your Own High-Tech Company."

A session cosponsored by the Topical Group on Magnetism will focus on the many important technological applications of magnetism. These applications have become so pervasive in our society that one speaker suggests that the 20th century has been the "century of magnetism." Magnetic materials and devices now represent several multi-billion-dollar industries, including disk drives and magnetic tapes. Entitled "Magnetism in Technology," this symposium will highlight both present and future applications of magnetism. Stuart Wolf of the U.S. Naval Research Laboratory will chair the sessions, which feature five experts in the field.

Many industrial applications of magnetism require complex control of the magnetic properties of microfabricated ferromagnetic materials. Achieving this control often poses enormous challenges, but computing has become sufficiently powerful that researchers today can learn much about micromagnetic control from computer modeling. In a companion session to "Magnetism in Technology," Manfred Schabes of IBM Research will chair a symposium entitled "Micromagnetics." Speakers will discuss dynamic magnetization processes, magnetoresistive memory devices, and many important physical effects that are critical to the design of various present and future magnetic-storage technologies.

Physicists participating in "Physics of the Silicon Bond in Electronic Materials" may well debate the assertion that this has been the century of magnetism. This session, chaired by Francisco Leon of Intel Corp., will address several key applications for silicon. Moore's law predicts not only ever-smaller lithographically defined features, but also the denser packing of circuits, which can only be achieved with lower-dielectric-constant materials. The symposium brings together contributions from diverse areas of technology and academic disciplines, all of which are connected through the role played by the chemical bond that silicon atoms form in these and other important materials. Topics will range from the orbitals of a silicon-carbon bond in porous organosilicon compounds, to the effect of the silicon-nitrogen or silicon-oxygen bond on the polarizability of dielectric materials, to the core electron energies at the silicon/silicon dioxide interface. Both physicists and chemists will give overviews of the field from their own perspectives.

FIAP and the Division of High Polymer Physics will cosponsor a session entitled "Polymers for Displays," which Glenn Held of IBM Research will chair. The featured speakers will discuss applications of polymer organic light-emitting diodes, cholesteric liquid crystals, switchable gratings made from polymer dispersed liquid-crystal films, and new composite materials that could enable a flexible reflective display.

The session entitled "Industrial Applications of Advanced Optical Techniques," chaired by Hans Coufal of IBM

BIOGRAPHY

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Research, will deal with many new applications of advanced optics, including interferometric lithography, photothermal analysis of semiconductors, laser texturing of disk substrates for magnetic recording, optical data-storage technology, and several applications of spectroscopic ellipsometry.

Richard Garwin of the Council of Foreign Relations and IBM Research will chair "A History of Physics in National Defense," a session in which speakers with personal experience in their subjects will discuss the development of radar and nuclear weapons, imaging and communications satellites, and a variety of other national programs and policies.

In "Physics in the Petroleum Industry," an invited session organized by Thomas Halsey of Exxon Corp., speakers will cover topics ranging from the physics of sedimentary geology to the dynamics of lubrication.

Stefan Zollner of Motorola and Willes Weber of Ford Motor Co. are organizing a focused session entitled "Industrial Applications of Optical Spectroscopy." This program will feature one invited speaker and a number of contributed talks on the industrial applications of optical spectroscopy for process, yield and materials analysis, metrology, and also technology development.

In the convention center exhibit hall throughout the APS centennial meeting, FIAP will sponsor an exhibit entitled "Physics in Industry." Coordinated by Cherry Murray of IBM and Matt Richter from On-Line Technologies, Inc., this salute to APS's 100th anniversary will include records, models, and demonstrations from such industrial giants as Ford Motor Co., General Motors, IBM, and Bell Labs/Lucent Technologies.

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