

## Penn State Chapter Learns How to Write Successful Proposals

In May 1988, the MRS Pennsylvania State University Chapter sponsored a workshop on "Grantsmanship: The Art of Funding Proposals." During the half-day workshop, 135 participants learned how to write successful proposals. Five panelists representing Penn State University and local industry covered such topics as how to put an idea into project format, matching projects to funding agencies, the mechanics of proposal writing, and how to prepare budgets.

Richard E. Tressler, director of the Penn State Center for Advanced Materials, spoke on strategies for successful proposals. These, he said, include knowing your audience and stressing the uniqueness of your expertise and your laboratory's abilities to carry out the proposed research. Tressler also discussed the differences in writing proposals for government and industry and how to handle multi-investigator programs. He stressed the importance of including a carefully written summary and research plan in the proposal.

Maynard R. Kohler, Penn State liaison to the Federal Office of Sponsored Programs, spoke on agency matching. The first step in this process, he said, is to determine the needs of various funding agencies in order to find the ones your proposed work could satisfy. Kohler described the Resource Information Service, available at Penn State, which provides information on funding opportunities from federal, state, and private agencies. After locating suitable agencies, the proposed project must then be defined to fit the needs and mission of those agencies. He urged proposal writers to say what significant needs would be met and to include a plan of action or project design to show what specific activities would enable meeting the proposal's objectives.

James W. Hill, senior proposal coordinator for HRB-Singer Corporation, State College, spoke about the importance of an organized approach. He recommended first defining the funding agency's need and then listing the requirements to solve the problem. Next would come a proposal flowchart and a document plan to guide in preparing the proposal. He also recommended preparing detailed outlines for the technical and managerial sections as well as the cost analyses and executive summary. Hill emphasized the importance

of the executive summary, a two-to-four page review of the overall proposal, citing it as the most read, most convincing part of the proposal. He also discussed graphics and illustrations, saying they should be carefully designed to help readers better understand the facts and arguments in the proposal.

Donald H. Fornwalt, coordinator of research funds for the Penn State College of Earth and Mineral Sciences, spoke about budget preparation. Preparing a budget, he said, means anticipating needs that normally include equipment, supplies and salaries, but may also include travel, communications and publication expenses. Fornwalt cited the National Science Foundation guidelines as a good example for initial stages but recommended preparing the final budget according to the funding agency's format. Some agencies require detailed lists of expendable supplies and materials and prior approval for some equipment purchases while other agencies do not.

Paul W. Brown, associate professor of ceramic science and engineering at Penn State, addressed the proposal writing and review processes. A good abstract, he said, is important; it should cover all the pertinent points of the proposal and stress the importance of the proposed work. Brown recommended submitting a comprehensive literature survey of recent work and work from related fields. The technical sections of the proposal should, he explained, specifically discuss how the results will be obtained and should also mention the advantages and disadvantages of various experimental techniques. Brown emphasized the importance of a good summary, a point stressed by all the panelists. He also advised paying special attention to the mechanical aspects of the proposal—spelling, grammar, and appearance. For many sponsors, he said, the quality of the proposal indicates the quality of the work they can expect.

Because of the overwhelming response, the Penn State University Chapter plans to make the workshop an annual event. Next year's workshop will either be a repeat of this year's or it may be on technical writing or making technical presentations. Funding for the workshop was provided by the Pennsylvania State University and Engelhard Corporation.

### Other 1988 Activities

At its January 1988 meeting the Penn State University Chapter heard John

Hellman describe the new Penn State Center for Advanced Materials (CAM). Hellman, assistant director of the center, described CAM as a technology bridge between advanced materials suppliers and industrial end-users. The multidisciplinary center is divided into three groups: technology assessment and transfer, analytical and engineering services, and research. At present, the center's main thrust is to develop, characterize, and optimize materials for high-temperature applications, with emphasis on radiant-tube technology. CAM also offers short courses and workshops on advanced materials technology.

The February 1988 meeting featured Heinz K. Henisch, professor of physics and the history of photography at Penn State, who described the "Beginnings of Photography." Henisch described the development of photography and photographic processes from their inception up to the daguerreotype. He also discussed the relationship between artists and the early photographers and how artists viewed this new form of artistic expression. Henisch is scheduled to address the Chapter again this spring on "Crystals in Gels and Liesegang Rings."

During the March 1988 meeting, Russell Messier, professor of engineering science at Penn State, spoke on the chemical vapor deposition of diamond films. After reviewing the history of CVD diamond research and some early Penn State studies in hydrocarbon formation, Messier described some of the methods for producing CVD diamond films, such as the heated filament, microwave plasma, rf plasma and dc plasma techniques. He also detailed the proposed growth mechanisms, including the importance of atomic hydrogen in the system, and discussed possible applications for CVD diamond films. A tour of the Penn State Materials Research Laboratory's diamond film research facilities followed.

The April 1988 meeting included a trip to the Corning Glass Works, State College, Pennsylvania, which manufactures glass parts for television picture tubes and CRT display monitors. The tour took participants through the entire picture tube manufacturing process—starting with the glass melting furnaces and continuing through the glass shaping and annealing operations, and finally the packaging and shipping.

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