

Meetings

Nuclear Emulsion Research

The Conference on Cooperative Nuclear Emulsion Research was held March 31–April 2 at DePauw University in Greencastle, Indiana. Of the seventy-one physicists who attended, sixty came from colleges and universities, with this number about equally divided between small and large institutions. The remaining eleven persons represented government laboratories and industrial and national laboratories. The conference participants came from nearly all sections of the United States, and two came from Canada.

It was the purpose of the conference to explore problems related to the establishment and operation of cooperative research programs between the laboratories actively engaged in nuclear emulsion research and the college physicist who would like to undertake such research. Two years ago Amherst College and the National Science Foundation sponsored a conference at Amherst at which twenty-five college physicists broadly considered the general question of physics research in colleges. The report of the Amherst conference, which has been widely circulated, contained the unanimous recommendation that physics research in colleges be encouraged. It also proposed ways of supporting such research, listed benefits to be achieved from it, and suggested certain criteria for investigations suited to the general climate of the small college.

The DePauw conference discussed the practicability of nuclear emulsion techniques for physics research at the small college and considered the various aspects of such research as it might be carried out in cooperation with an established laboratory. How the laboratory could offer aid in exposing and processing emulsions and provide instruction and advice in analysis procedures without at the same time reducing the small college physicist to "slave satellite" status was well aired.

Arrangements and the program for the conference were set up by a steering committee co-chaired by Marcel Schein of the University of Chicago and Malcolm Correll of DePauw University. Other members of the steering committee were Fay Ajzenberg, Boston University; M. F. Kaplon, University of Rochester; R. R. Palmer, Beloit College; Chaim Richman, University of California at Berkeley; and E. O. Salant, Brookhaven National Laboratory. J. Howard McMillen of the National Science Foundation worked closely with the committee, and the success of the conference is due in no small measure to his interest and assistance.

The formal program presented the following: Introduction of the Conference (J. Howard McMillen); Summary of Results Achieved by Nuclear Emulsion Techniques (Marcel Schein); Structure and Performance of Nuclear Track Emulsion (John Spence, Eastman Kodak Co.); The Processing and Control of Nuclear Track Emulsion (Arthur Beiser, New York University); Microscopes and Accessories (W. J. Fry, University of Wisconsin); Accessory Experimental Equipment (Gus T. Zorn, Brookhaven National Laboratory); Balloon Techniques (John E. Naugle, University of Minnesota); Minimum Facilities for Nuclear Emulsion Research (Marcel Schein); Experiences with Cooperative Nuclear Emulsion Research (K. E. Davis, Reed College, Aaron Lemonick, Haverford College, and A. D. Sprague, DePauw University); Cosmic-Ray Work with Nuclear Emulsions (M. F. Kaplon); Nuclear Emulsion Research with Accelerators of Intermediate Energies (Louis Rosen, Los Alamos Scientific Laboratory); Nuclear Emulsion Research with the Cosmotron (E. O. Salant); and Nuclear Emulsion Research with the Bevatron (Marion Whitehead, University of California at Berkeley).

Considerable time was allowed within the program for discussions from the floor. These valuable contributions are embodied in the following "Observations and Recommendations" which, at the closing luncheon, received the unanimous approval of the conference.

"1. It is the belief of this conference that nuclear emulsion programs of cooperative research between colleges and large research centers should be expanded. Active research stimulates the instructor and thereby makes him a more inspiring teacher by permitting him to contribute in an original manner to his chosen field. It serves to develop enthusiasm amongst students. It enables a college to attract and to retain a superior faculty and better students. Research with nuclear emulsions is particularly well suited to cooperative programs in colleges. Research centers are eager to share their facilities for work with nuclear track plates with interested researchers in other institutions. Significant research can be accomplished in studying such plates in colleges with limited facilities. Such programs have already demonstrated their value and could most profitably be extended to other institutions.

"2. The conference concluded that universities and national laboratories would benefit from an expanded cooperative research program and would indirectly benefit from the stimulated students who would later seek careers in physics via the graduate schools of the universities.

"3. It is recognized that this cooperative research, to serve its purpose as a necessary adjunct to a well-rounded physicist, must be of a meaningful nature. In addition there exists the requirement that for its adaptation by liberal arts colleges it must not require large financial expenditures. It is the belief of the conferees that basic research using nuclear emulsion techniques satisfies both of these requirements to a high degree. There exist large classes of problems in nuclear

physics covering the entire energy spectrum from 1 Mev to the highest energies in the cosmic radiation that can be undertaken with a minimum amount of equipment by a small staff and yet lead to meaningful and to significant physical results, representing a real contribution to knowledge.

"4. It was felt that the participation of undergraduates in cooperative research is beneficial and should be encouraged. However, it is suggested that, for students, the physics rather than the purely technical aspects of the research problem be emphasized.

"5. It was recognized that in order for cooperative research to be carried out successfully by college physicists, it is absolutely essential that adequate time be made available. In some cases this can only be accomplished by decreasing teaching loads. In order to maintain effective cooperation it is also imperative that means for frequent visits to the cooperating institution be provided. While some colleges may not be able to make substantial financial contribution to these programs, they could share in the activity by giving such arrangements their whole-hearted support.

"6. Many college teachers find it difficult to get started in the rewarding field of nuclear emulsion research because of their need for information about recent research developments and specialized techniques. It is recommended, therefore, that summer institutes be established to instruct college teachers in current nuclear emulsion research techniques and to review knowledge in relevant fields of modern physics."

A more comprehensive digest of the proceedings of the conference is being prepared by members of the steering committee. Requests for these should be addressed to the undersigned at the Department of Physics, DePauw University, Greencastle, Indiana.

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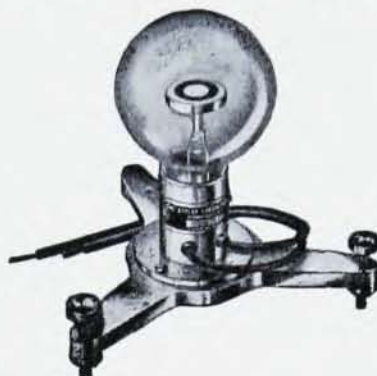
Association of Physics Teachers

The annual meeting of the American Association of Physics Teachers was held in downtown New York, using the facilities of the Hotel McAlpin, Hotel New Yorker, and The Manhattan Center, on January 27, 28, and 29.

The meetings on Thursday were devoted to a symposium on the role of physics in engineering education, and to one on solid-state physics and nuclear physics in engineering education. These were headed, respectively, by R. Ronald Palmer, Beloit College, and Raymond J. Seeger, National Science Foundation. Participating in the first symposium were J. R. Dunning (Columbia), L. P. Smith (Cornell), J. H. Keenan (Massachusetts Institute of Technology), O. W. Eshbach (Northwestern), G. H. Carragan (Rensselaer Polytechnic Institute) and W. W. Watson (Yale). Participating in the second symposium were F. Seitz (University of Illinois), E. Weber (Brooklyn Institute of Technology), J. E. Goldman (Carnegie Institute of Technology), C. Bonilla (Columbia), and D. Loughridge

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