

MAY/1971

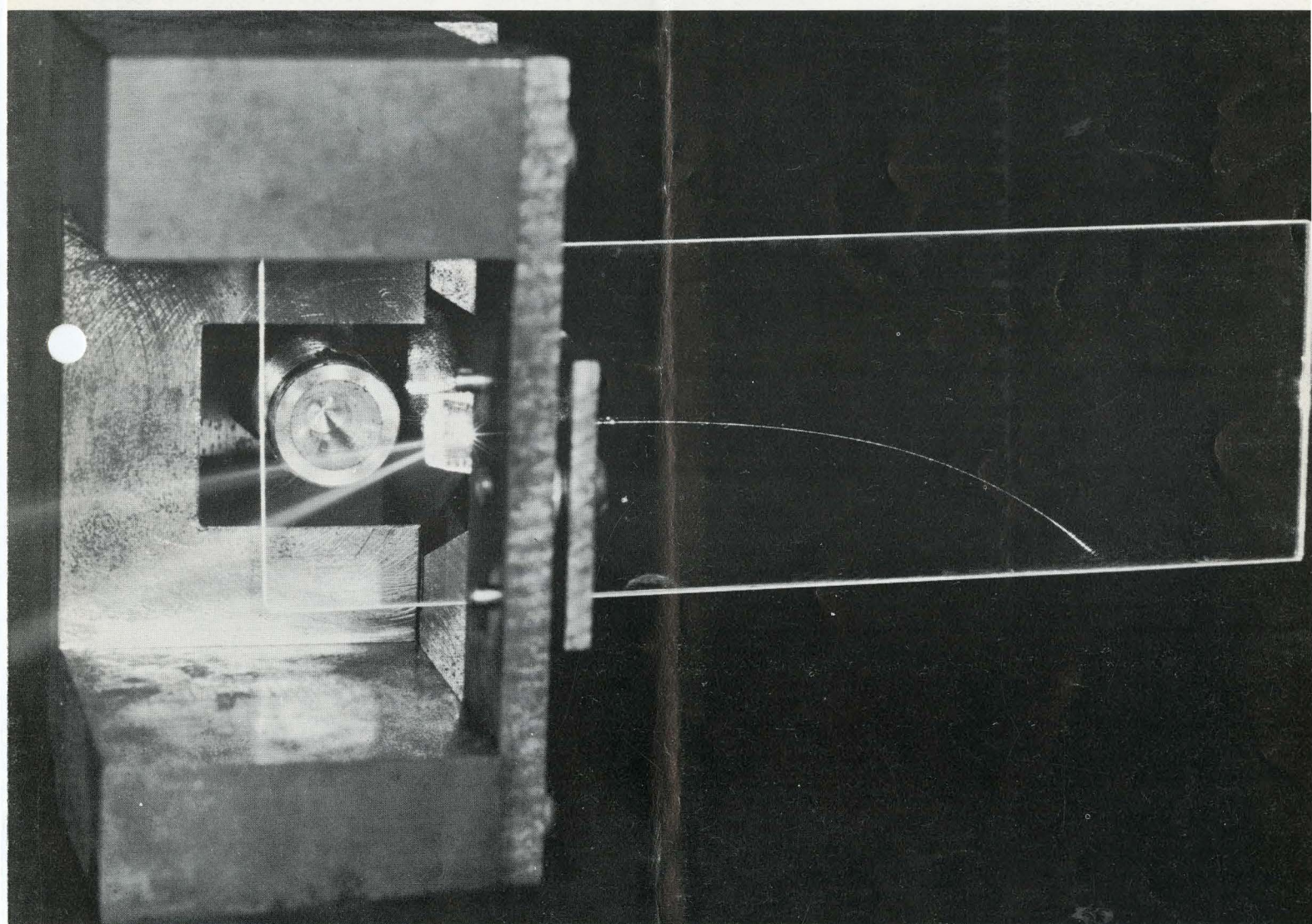
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ELECTRICAL AND
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Lasers and Their Applications

Four laser specialists from the University of Illinois, Urbana, will discuss "Lasers and their Applications" at a meeting Wednesday, May 12, 1970, cosponsored by the Chicago Section, IEEE, and the Fox Valley and Northwest Subsections. Meeting will be held at 7:30 p.m. in Chicago Circle Center, at Polk & Halsted Streets. Plenty of parking on the northeast and southeast corners of Polk & Halsted Streets.

All speakers are in the Department of Electrical Engineering at Urbana. Dr. Marvin E. Krasnow will moderate the meeting.

Professor Paul D. Coleman will talk on "Chemical and Molecular Lasers," pointing out that molecular lasers span the spectrum from a few micrometers to nearly one millimeter in wavelength. They are the highest average power coherent sources available. Coleman will discuss the general problems of pumping these lasers by chemical, electrical, and photon means.

Professor Oscar L. Gaddy will discuss "Detection of Nanosecond Infrared Laser Pulses with Thin Film Thermal Devices." Thin film thermal detectors (thin film thermocouples and bolometers) are sensitive infrared detectors at room temperatures. They have response times of less than 15 nanoseconds and quite high sensitivity when operated in a heterodyne detection mode. Experiments with metal and semiconductor thin film detectors will be discussed, and possible applications pointed out.

Professor Nick Holonyak, Jr. will discuss "Carrier Lifetime, Luminescence, and Laser Operation of GaAs, GaAsP, and InGaP." Recent measurements of spontaneous and stimulated carrier recombination and lifetime in GaAs, GaAsP, and InGaP allow us to better understand the radiative and non-radiative recombination processes in LED's (light emitting diodes). The problem of visible light generation via p-n homo- and heterojunctions in III-V compounds and the various prospects and constraints posed by

different crystal systems will also be discussed.

Professor T. Verdeyen will discuss "Enhancement of CO₂ Laser Power and Efficiency by Neutron Irradiation." Experiments show that the efficiency and power of a CO₂ laser may be increased by irradiating the discharge with energetic alpha and lithium ions produced by the (n, α) reaction with B¹⁰. The effect seems to be a tailoring of the electron distribution towards optimum laser pumping. This work, being performed by T. Gauley in cooperation with Professor G. Miley, is supported by the U.S. Atomic Energy Commission.

Preceding the formal program, the Electrical Engineering Laboratories of Chicago Circle will be open for inspection. There will be two tours, one beginning at 6:30 p.m. and the other at 7:00 p.m. The tour groups will meet in Room 3257, Science and Engineering Building.

The election of officers for the 1971-72 season for the Chicago Section will be held at this meeting.

Marvin E. Krasnow is coordinator of university-industry relations at the University of Illinois-Urbana. Dr. Krasnow also teaches electrical engineering courses in solid state.

Paul D. Coleman is a graduate professor in electrical engineering and director of the electro-physics laboratory at the University of Illinois, Urbana. He has been interested in submillimeter-far infrared problems for many years; first from the microwave side and with the advent of the laser from the optical side of the spectrum. He was made a fellow of the IEEE for his contribution to millimeter wave research.



KRASNOW



COLEMAN



GADDY



HOLONYAK



VERDEYEN

Since 1962, Oscar L. Gaddy has been on the faculty of the Department of Electrical Engineering, University of Illinois-Urbana, where he is now a professor of electrical engineering. His present research interests include fast visible and infrared wavelength pulse generation with lasers, nonlinear optics, and detection of subnanosecond visible and infrared pulses.

Dr. Gaddy is a member of Kappa Nu, Tau Beta Pi, Sigma Tau, Phi Kappa Phi, and Sigma Xi.

Nick Holonyak, Jr. worked on the first diffused-impurity silicon devices at Bell Telephone Laboratories. After two years in the Signal Corps, he joined the advanced semiconductor Laboratory of the General Electric Company. At GE, among other devices he studied tunnel diodes, junction luminescence, and semiconductor lasers, including the first (1962) semiconductor laser to operate in the visible spectrum. Since 1963 he has been a professor at the University of Illinois. Dr. Holonyak is co-author of the book *Semiconductor Controlled Rectifiers* (Prentice-Hall, Inc., 1964), editor of the Prentice-Hall series "Solid State Physical Electronics," is on the editorial board of the *Proceedings of the IEEE*, and is a recipient of a Cordiner Award (GE-1962). He is a Fellow of IEEE and a member of APS, AAAS, and Mathematical Assoc. of America.

Joseph T. Verdeyen teaches in the Electrical Engineering Department, University of Illinois-Urbana and does research on gas lasers and plasmas. At the present time, he is a professor in electrical engineering and the nuclear engineering program.

Dr. Verdeyen is a member of Tau Beta Pi, Sigma Xi, and the American Physical Society.

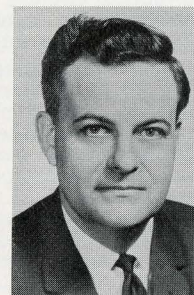
Appliance Technical Conference

The 22nd Annual Appliance Technical Conference will be held at the Sheraton Chicago Hotel, Chicago, Ill., May 4-5. The conference is sponsored by the Domestic Appliance Committee, Institute of Electrical and Electronics Engineers in cooperation with the Chicago Section.

Papers, addresses and discussions will cover a broad range of appliance subjects. Twelve technical papers will be presented during the two-day event. Plant tours will include the Chicago Lakefront Filtration Plant, the engineering systems of the John Hancock Center, and the testing facilities of Underwriters' Laboratories.



BAILLIF



BRETING

Dr. E. A. Baillif, vice president, research and engineering, Whirlpool Corp., Benton Harbor, Mich., will be the keynote speaker. Dr. Baillif will discuss "Some Engineering Imperatives for the Years Ahead." Donal L. Breting, vice president, follow-up services, Underwriters' Laboratories, will report the progress of the UL advance program during the Tuesday luncheon. Jules Steinberg, executive vice president, National Appliance and Radio-TV Dealers Association, will present the dealers' view of appliance reliability and quality at the Wednesday luncheon.

Registration for the Appliance Technical Conference, including luncheons, is \$21 for IEEE members and \$24 for non-members if made in advance. Registration at the conference will be \$23 and \$26, respectively. Advance registration should be sent to: Richard Bonkowski, Appliance Technical Conference, c/o Westinghouse Electric Co., 10 S. Riverside Plaza, Chicago, Ill., 60606.

Members of the 1971 conference are: *Chairman*—Stephen Mazzoni,

managing engineer, Heating, Air-Conditioning and Refrigeration Dept., Underwriters' Laboratories; *Technical program co-chairmen*—



MAZZONI

buck & Co.; *Finance*—John R. Flynn.

William K. Kullman, range design engineer, Chicago Operation, General Electric Co., and Henry O. Miller, appliance engineer, Merchandise Development Laboratory, Sears Roebuck & Co.; *Finance*—John R. Flynn.

Electric Vehicles

Gordon J. Murphy, Northwestern University, will speak on the Electric Vehicle at the May 19th meeting of the Northwest Subsection. The talk will include slides and movies of an electric vehicle. If circumstances permit, the vehicle itself will be on display. Dr. Murphy was Director of Technical Development of Linear Alpha Company, which built a working electric van.

Dr. Murphy is presently professor of electrical engineering and director of the Information-Processing and Control Laboratory, Northwestern University, having previously served a nine year term as chairman of the Department of Electrical Engineering. Murphy received a BS in electrical engineering from the Milwaukee School of Engineering in 1949, an MS in electrical engineering from the University of Wisconsin in 1952, and a Ph.D from the University of Minnesota in 1956. Professor Murphy is a Fellow of IEEE for his "contributions to education and research in the field of automatic control."

Election of Officers for the 1971/72 term will be held at this meeting.

The meeting will be held at Old Orchard Country Club at Rand and Euclid Roads in Mount Prospect. Cocktails will begin at 6, dinner at 7 sharp, and the talk will begin at 8. The price of the meal will be about \$6.00. For reservations call Bill Kusner at 727-1972 before Monday, May 17th.

Engineering in Medicine and Biology

"Bioengineering in Chicago"

On Tuesday, May 25, 1971, the Engineering in Medicine and Biology Group will meet in Room 4052 Science and Engineering Laboratories, Chicago Circle Campus, University of Illinois, Halsted and Taylor Streets. The meeting will be devoted to a discussion of the Bioengineering program at Chicago Circle. Parking in Lot No. 3, Polk and Halsted Streets; mention the bioengineering program.

Dinner will be at 6:30 p.m. in Chicago Circle Center, immediately across from parking lot No. 3. Cost is expected to be about \$4.00; for reservations, call Mike Fanizza, 745-4923, by May 21.

Meeting proper will start at 7:30 p.m. Topics to be covered include: Physiological control systems; bioinstrumentation; biophysics; information processing in biological systems; and biomaterials. Discussions will be combined with laboratory tours and demonstrations.

A coffee-discussion period will be held at the end of the program.

Power Symposium

The IEEE Power Engineering Society 1971 Summer meeting and International Symposium on High Power Testing will be held in Portland, Oregon, at the Portland Hilton Hotel from July 18 through 23, 1971. General Chairman of the event is Louis N. Stone, Electrical Engineering Department, Oregon State University, Corvallis, Oregon.

More than 200 papers will be presented at the many technical sessions to be held during this 5-day meeting. Besides the technical programs, several inspection trips have also been planned, highlighted by an overnight trip to Grand Coulee Dam, Washington on Thursday, July 22 and returning to Portland Friday, July 23. Here will be seen the third power house in construction to increase the capacity of Grand Coulee Dam and put it back on the map as the world's largest power generating plant.

Further details may be obtained from Don R. Selden, Publicity Chairman, Portland General Electric Company, 621 S.W. Alder Street, Portland, Oregon 97205.



William Hogan spoke to Fox Valley guests at April meeting.

Fox Valley Hosts Chicago Chief Electrical Inspector

Electrical building codes directly affect the safety, convenience, and cost of virtually every structure, William P. Hogan, Jr., chief electrical inspector, and deputy building commissioner, of Chicago told the Fox Valley Subsection at the April 7th meeting.

Hogan highlighted these areas:

1. Sources for basic parameters;
2. Procedure for making and administering changes; and

3. High-rise building protection and grounding.

In addition to heading up the electrical inspection office of the City of Chicago, Hogan is a vice-president of Local 134 IBEW. He has served as president of the International Association of Electrical Inspectors (IAEI). He is currently chairman of the Code Making Panel No. 9 of the IAEI, and active on several National Fire Prevention Association committees.

Hogan pursued his work towards an electrical engineering degree at the Illinois Institute of Technology.

He served as an electrician's mate 3/c U.S. Navy on convoy duty during WW II. His background includes working as an electrician and foreman for Chicago contractors, prior to starting his civil service career with the City of Chicago in 1948. He became chief electrical inspector in 1955, placing first in state-wide examinations. In 1965 he was appointed deputy building commissioner.

THE COVER—Research on lasers and their applications are being conducted in many research laboratories. The cover photo shows a laser light guide being studied at Bell Telephone Laboratories. These lightguides can channel laser beams through relatively sharp bends. Such guides could be used to develop a whole new class of optical circuits, with potential applications in laser communications systems of the future.

Four laser specialists from the University of Illinois, Urbana, will discuss what their laboratories are doing to study lasers and their applications at the meeting on Wednesday, May 12, cosponsored by the Chicago Section IEEE, and the Fox Valley and Northwest Subsections. Meeting will be held at 7:30 p.m. at Chicago Circle Campus. Details inside.

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