



The IEEE

Newsletter

The Magazine of the North Jersey Section

**Is Today's Process Control Computer Tomorrow's
Assistant Plant Manager?**

Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, N.J.
November 24, 1969, 8:00 P.M.

November, 1969

MEETINGS CALENDAR

Thursday, November 13

North Jersey GMITT/G-AP — **Pretersonics - Springs, Magnets and Microwaves**, Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, N.J., 8:15 P.M.

Monday, November 17

North Jersey Com-Tech — **Recent Advances in Space Communications**, ITT Auditorium (under the tower), 500 Washington Avenue, Nutley, N.J., 8:00 P.M.

Monday, November 17

Princeton Magnetics — **Mated-Film Magnetic Memory**, Convocation Room, C217, Princeton University, Engineering Quadrangle, Princeton, N.J., 8:00 P.M.

Thursday, November 20

North Jersey Computer — **Concepts, Applications and Future Directions in Micro-programming**, Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, N.J., 8:00 P.M.

Thursday, November 20

Metropolitan Chapter, Engineering Management Group — **International Opportunities for Technically Oriented Companies**, Engineering Societies Building, East 47th Street at First Avenue, N.Y.C., 7:30 P.M.

Monday, November 24

Joint North Jersey Section/Automatic Control — **Is Today's Process Control Computer Tomorrow's Assistant Plant Manager?**, Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, N.J., 8:00 P.M.

Monday, December 15

North Jersey Automatic Control — **A Guided Subterranean Penetrator for Burying Utilities**, Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, N.J., 8:00 P.M. (Details next month)

ON THE COVER: *The First Chemical Corporation's aniline plant in Pascagoula, Mississippi, is an example of the modern facilities making use of process control computers to do many "plant manager" functions.*

This \$6 million facility, engineered and built by The Badger Company, Inc., Cambridge, Mass., produces aniline and related nitrated products in excess of 50 million lbs./yr.

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The Newsletter, November 1969

Joint Meeting: The Plant Manager and the Process Control Computer

The North Jersey Automatic Control Group will sponsor a joint meeting with the North Jersey Section on November 24, at 8:00 P.M., at Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, N.J. Dr. Robert S. Davis, President of Davis Computer Systems, Inc., will present a talk titled, "Is Today's Process Control Computer Tomorrow's Assistant Plant Manager?"

A pre-meeting dinner will be held at Wally's Tavern on the Hill, Bonnie Burn Road, Watchung, N.J. Refreshments will be served following the meeting.

About the Talk

Today, process control computers assist plant managers by carrying out orders for producing chemicals, plastics, petroleum products, mechanical parts, power, steel and paper at a level of efficiency beyond the reach of human operators.

However, manufacturing processes also generate information as well as products and the process control computer can economically convert the analog manufacturing data into digital form at the source. We can now use on-line computers for management information acquisition and reporting as well as in the control of the manufacturing process. This can be a powerful tool in assisting management in directing the operations under its control. Some of the trends in the use of on-line computers in industrial control and laboratory automation will also be reviewed.

About the Speaker

Robert S. Davis received his B.S. and M.S. degrees in Chemical Engineering from the California Institute of Technology and his Sc.D. degree in Chemical Engineering from MIT. Previous to organizing Davis Computer Systems, of which he is currently president, Dr. Davis was president of Realtime Systems, Inc., and a co-founder of Chem Systems, Inc. Earlier he was Asst. Vice President-Director of Development at Scientific Design Company, Inc. and Halcon International, its parent company.

His special fields of competence include managing, developing and marketing of computer applications in the areas of industrial process control, laboratory automation, engineering design, data processing and time-sharing. He has written and had published numerous papers in these fields.

Dr. Davis is affiliated with several pro-



Dr. R. S. Davis

fessional organizations including AICHE, Sigma Xi, IEEE and American Men of Science. He is a member of the Chemical Engineering Department Faculty Advisory Committee at Princeton University.

Time: Monday, November 24, 1969; 8:00 P.M.

Place: Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, N.J.

Pre-Meeting Dinner: 6:00 P.M. - Wally's Tavern on the Hill, Bonnie Burn Road, Watchung, N.J.

Recent Advances In Space Communications

The North Jersey Chapter of the Communications Technology Group will open its 1969-1970 season with a paper entitled Recent Advances in Space Communications. The speaker will be Mr. Louis Feit of ITT.

Time: Monday, November 17, 1969; 8:00 P.M.

Place: ITT Auditorium (under the tower), 500 Washington Avenue, Nutley, N.J.

North Jersey Computer Group Elects Officers

At its June meeting the North Jersey Computer Group elected the following officers for the 1969-70 year:

Chairman: Richard R. Shively, Bell Telephone Laboratories, Whippany, N.J., (201) 386-4715.

Vice-Chairman: Sy Salowe; Westinghouse, Newark, N.J., (201) 465-2470.

Anyone in the Computer Group who is interested in joining the Executive Committee which is responsible for selecting future speakers for the group should contact one of the above officers.

Concepts and Future Of Microprogramming

Microprogramming—what is it and why is it receiving so much interest among those concerned with the design and efficient use of computers? These and other questions will be discussed at the November meeting of the North Jersey Computer Group.

About the Talk

Basically, microprogramming provides a means of defining the execution of individual instructions in computers, rather than starting with a pre-determined, fixed instruction repertoire. Computer manufacturers have found it most useful because it allows the software personnel to become involved in the design of a computer at an earlier stage. Users have found microprogramming attractive because it permits defining new instructions, tailored to specific needs, in existing computers.

About the Speaker

Dr. William Stevens of IBM will describe the development of the microprogramming approach for the design of com-

puter controls, and the general concepts, using various models of IBM/360 as examples. He will contrast microprogramming with the previously conventional hardware controls. Advantages and disadvantages will be given. A review of current applications and prognostication regarding future directions will also be given.

Dr. Stevens received a BS from Bates College in 1953 and an M.S. and Ph.D. in Engineering Physics from Cornell University in 1955 and 1958 respectively. After joining IBM, he was initially active in the architectural definition of IBM 7030 (STRETCH) and IBM System/360. He was Manager of microprogramming design of the System/360, model 50. Currently he is a senior engineer in the medium systems planning group at the IBM System Development Laboratory in Poughkeepsie.

Nonmembers are welcome. There is no admission charge.

Time: Thursday, November 20, 1969; 8:00 P.M.

Place: Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, N.J.

Pre-Meeting Dinner: 6:00 P.M. — Wally's Tavern on the Hill, Bonnie Burn Road, Watchung, N.J.

Engineering Management Group Meeting

The Metropolitan Chapter, Engineering Management Group will hear Mr. Edward E. Muriot, Vice President of NARCO Scientific Industries, speak on "International Opportunities for Technically Oriented Companies," on November 20, 1969. Mr. Muriot was recently promoted to head the Medical Group of companies in NARCO, following more than three years as President of Air Shields, Inc., one of the companies in that group. Air Shields manufactures a variety of apparatus for hospitals, including the "Isolette" infant incubator and coronary intensive care electronic monitoring equipment.

About the Speaker

The son of a French naval officer, Mr. Muriot served in the French underground movement while still in his teens and came to the U.S. shortly after the war, when his father was attached to the French embassy in Washington. He became a U.S. citizen, undertook graduate work at Georgetown University, and joined the Singer Company in Washington, starting as a salesman. With the Pharmaseal Laboratories Division of American

Hospital Supply Corporation, he was first a sales representative in the Washington area, then moved through several positions including District Sales Manager and International Marketing Administrator. During this period Pharmaseal enjoyed a spectacular growth in sales.

He joined Litton Industries as Manager of International Marketing for the Medical Sciences Division. Joining Air Shields, Inc. as Executive Vice President, he was made President in August, 1966.

Time: Thursday, November 20, 1969; 7:30 P.M.

Place: Engineering Societies Building, East 47th Street at First Avenue, New York City.

Pre-Meeting Dinner: 6:00 P.M. For information call Jim Leonard, Chairman, (203) 327-2000, or (212) 428-3637, or Norman Mills, (212) 585-3000, Ext. 3003.

Semiconductor Surface Passivation

The Electron Devices Group will sponsor a talk on "Passivation of Semiconductor Surfaces," by Dr. L. V. Gregor, IBM Components Development Laboratory.

About the Talk

The practical application of semiconductor devices and integrated circuits requires that the surface properties of the semiconductor be controlled and stabilized, or "passivated." Both primary passivation of the surface itself, and secondary passivation of the primary layer and metallurgy are essential. The techniques of passivation include oxide growth, vapor deposition, sputtering, and vacuum evaporation. The passivated surface may be characterized by capacitance, charge transport, and electronic device parameter measurements.

About the Speaker

Dr. L. V. Gregor received the BS degree in chemistry from Pennsylvania State University in 1954 and a Ph.D. degree from the University of California at Berkeley in 1961. Since 1961 Dr. Gregor has been a member of the professional staff at IBM where he presently is Manager, FET Technology Development in the Components Development Laboratory.

Time: Thursday, November 20, 1969, 8:00 P.M.

Place: International Telephone and Telegraph Laboratories, Nutley, N.J.

Pre-Meeting Dinner: Copperhead Restaurant, south of Route 3 at Park Avenue Exit, 6:00 P.M.

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Preterersonics—Springs, Magnets and Microwaves

The November meeting of the North Jersey Section of GMTT/G-AP will feature a talk by the 1969 MTT National Lecturer, *Dr. R. W. Damon*.

About the Talk:

Microwave sound waves in solids provide novel and useful properties for both physical investigations and device use. Preterersonic technology is based on the propagation of high frequency elastic waves and their interaction with spin waves and with light. The outstanding characteristic of elastic waves is their low propagation velocity (four to five orders of magnitude less than the velocity of light), which permits the construction of compact delay lines. The interaction between elastic waves and spin waves in magnetic materials such as YIG provides the basis for a class of electrically variable delay lines and broadband dispersive filters. This interaction also leads to some interesting parametric amplification effects in YIG. In this talk, the physical principles of these phenomena will be reviewed, experimental results will be de-

scribed and the status of some devices will be discussed.

About the Speaker:

Richard W. Damon is Head of the Quantum Electronics Department and Associate Manager of the Solid State Sciences Laboratory at the Sperry Rand Research Center, Sudbury, Massachusetts. He received the B.S. in physics and the M.A. and Ph.D. degrees in applied physics from Harvard University.

Dr. Damon is a Fellow of the IEEE and a member of the American Physical Society, Sigma Xi, and The American Association for the Advancement of Science. He serves on the Editorial Board of the Proceedings of the IEEE and is a member of the Ad Com of the Group of Sonics and Ultrasonics and of the Boston Section Executive Committee. He is a member of the NASA Advisory Subcommittee on Electrophysics and of the NASA Working Group on Electronic Materials. In 1966-67 he was Chairman of the Boston Chapter of the IEEE Group on Microwave Theory and Techniques and co-chairman of the 1967 Microwave Symposium. He has served on committees for the Conference on Magnetism and Magnetic Materials (1960, 1965, 1967, and



Dr. R. W. Damon

1968), NEREM (1961-63), Intermag (1969) and the Ultrasonic Symposium (1965-69), as Associate Editor of the Journal of Quantum Electronics (1965-68), on the Editorial Board of the Transactions on Microwave Theory and Techniques (1961-66) and as co-editor of the October, 1965 Proceedings of the IEEE, Special Issue on Ultrasonics.

Time: Thursday, November 13, 1969, 8:15 P.M.

Place: Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, New Jersey.

Dinner: 6:15 P.M., Wally's, Watchung, N.J.

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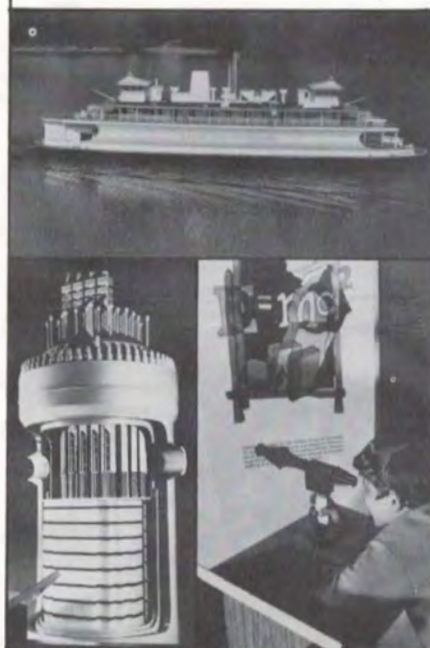


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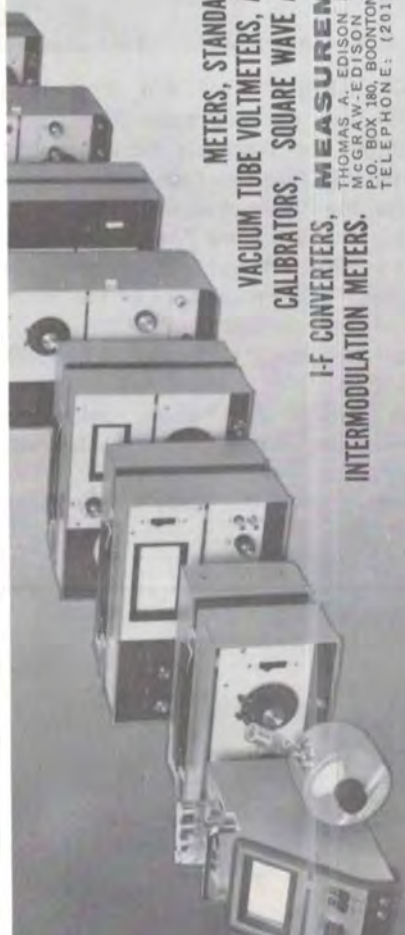
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Mated-Film Memory

A new type of thin magnetic film memory element has been developed by Univac of St. Paul, Minnesota. This memory element, called the "Mated-Film" is being developed for use in military memory systems with cycle times of 500 ns and capacities of up to ½ million bits.

An engineer from the Univac Federal Systems Division will describe the magnetic characteristics and construction of the memory element and the completed array structure.

The meeting is being held in Princeton, N.J., just prior to the Conference on Magnetism and Magnetic Materials (Ms) in nearby Philadelphia, so that conference attendees may have a chance to hear the talk.

Time: Monday, November 17, 1969; 8:00 P.M.

Place: Convocation Room, C217, Princeton University, Engineering Quadrangle, Princeton, N.J.

Pre-Meeting Dinner: 6:00 P.M. — Peacock Inn, 20 Bayard Lane, Princeton, N.J. For reservations for dinner contact Dr. Rudy Tenzer, (201) 826-5100, X317, or Dr. George Briggs, (609) 452-2700, X2276.

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