

## Chemical Processes

The New Jersey Section Control Society will present a talk on chemical processes on Thursday, November 16, at 8:00 PM, to be held at Bell Laboratories. Mr. Manny Leon of Union Carbide will be the speaker. He will discuss the relative advantages and disadvantages of computers and programmable controllers for use in the control system, host versus satellite computers, CRT versus common loop displays, and direct versus indirect measurement. He will discuss the selection of equipment used in typical control systems. Manny is a Senior Control System Engineer with eight years of practical experience after he received a BSEE from Brooklyn Polytechnic Institute. He is experienced in controls used in chemical processing for distillation columns, blending, reactors, boilers, etc. He will describe control system state-of-the-art (not chemical processes) from analog to digital systems with the computer in-line with the process. He will also describe the application of Honeywell's Total Digital Control System, TDC 200, to process control at Union Carbide.

**Time:** 8:00 PM, Thursday, November 16, 1978.

**Place:** Bell Laboratories, Whippany, N. J.

**Further Information:** Gerry Uhrig 386-6845, or Len Gardner 328-3450/6416.

## GaAs FET Oscillators & Broadband Amplifiers

The North Jersey MTT/AT Chapter November meeting will cover GaAsFET Oscillators and Broadband Amplifiers. Paul Wade, of Microwave Semiconductor Corp. will be the speaker.

The gallium arsenide field effect transistor is the first solid-state device to offer attractive amplifiers at frequencies above 4GHz. At C-band and X-band frequencies, GaAs-FETs have made significant in-roads as low noise amplifiers and are challenging travelling wave tube amplifiers as linear power amplifiers in many areas. As power oscillators, these devices also offer significant performance advantages. Current development is directed toward high powers at these frequencies and towards usable performance in Ku-band and higher frequency ranges.

The talk will describe the design and performance of broad-band GaAs-FET power amplifiers as well as a new type of

oscillator, the reverse-channel oscillator. Recent development at higher frequencies will also be discussed.

Mr. Wade received his BSEE degree from Newark College of Engineering, Newark, N. J. in 1973. He joined Microwave Semiconductor Corp. (MSC) in 1970 after working at RCA and Lockheed Engineering Co. He is presently project leader for GaAs-FET applications at MSC and has authored several publications on GaAs-FETs.

**Time:** 8:00 PM, Wednesday, Nov. 29, 1978.

**Place:** ITT Conference Auditorium, 500 Washington Ave., Nutley, N. J.

**Pre-Meeting Dinner:** Ramada Inn, Clifton, N.J. (eastbound lane Rt. 3) 6:00 PM. Reservations required.

**For Further Information:** E. W. Niemiec, ITTDCD, (201) 284-2758.

## Energy Recovery

The November meeting of the North Jersey Power Engineering Society will feature a discussion on Energy Recovery by Combustion of Wastes. The speaker will be Dr. Melvin L. Zwillenberg from Public Service Electric and Gas Company.

Dr. Zwillenberg will talk on the subject that sewage sludge refuse and other wastes represent both a disposal problem and a potentially valuable source of energy. PSE&G projects dealing with energy recovery from such wastes will be discussed. Technical, environmental and economic aspects will be considered.

The speaker, Dr. Zwillenberg is a Senior Engineer - Research in the Research & Development Department of PSE&G Co. He received his B.Ch.E. from Cooper Union School of Engineering in 1960, an M.A. from Princeton University in 1963, and his Ph.D. in Aerospace & Mechanical Sciences from Princeton in 1975.

Door prizes will be a calculator and a bottle of wine.

**Time:** 7:30 PM, November 29, 1978.

**Place:** Jersey Central Power and Light Company, Madison Ave., (Rt. 24) and Punchbowl Rd., Morristown, New Jersey 07960.

**Further Information:** Seymour Salowe, Chairman 465-2938, Gerard Barton, Vice Chairman 353-7000 X545, John Baka, Secretary 455-8534, Gene Opdyke, Program Chairman 688-1300.

## Data Communications For Office Seminar

"DATA COMMUNICATIONS FOR THE OFFICE OF THE FUTURE" is the title of a one-day NY IEEE Comsoc Seminar relating to future trends in this rapidly expanding field.

The following topics will be discussed, with the participating organizations noted.

PERSON TO PERSON COMMUNICATIONS - Satellite Business Systems  
MACHINE TO MACHINE COMMUNICATIONS - Telenet Communications Corp.

MACHINE TO PERSON INTERACTION - IBM Corp.

GRAPHIC COMMUNICATIONS - Xerox Corp.

USER EXPERIENCE IN OFFICE - Data Communications

**Time:** 9 AM to 4:30 PM, Tuesday, November 28, 1978.

**Place:** United Engineering Center, 345 E. 47th Street, N.Y.

**FEE:** (includes lunch & coffee breaks) \$40 Members, \$45 Non-Members, \$10 Students.

**Fee Payable To:** "IEEE COMSOC".

**Mail To:** Roger Coleman, Treasurer, Education Committee, New York Telephone, 210 West 18th Street, N.Y. 10011, 5th Floor.

**For Further Information:** Roger Coleman, (212) 620-3877.

## Instrument Interfacing

The New York, North Jersey, and Long Island Joint Chapter on Instrumentation and Measurements is sponsoring a one-day seminar, "Instrumentation Interfacing". This highly educational seminar will feature:

How to read instrument manufacturers' specifications better; what are the pitfalls

Instrument to Instrument Interfacing  
Instrument to Computer Interfacing  
Instrument to Personal Computer Interfacing

Instrument to Communications Systems Interfacing

This seminar will be held Tuesday, January 9, 1979 at the New Jersey Institute of Technology, Newark, N. J. Lunch will be provided as part of the admission price; ample parking is available.

For additional information contact Randolph D. Grossberg, Con Edison, 4 Irving Place - Room 1300, New York, N. Y. 10003.



# PAC NEWS

by Richard Tax,  
Section PAC Chairman

Reprinted from "GRID" the Newsletter of the  
San Francisco bay area council - Sept. 1978

"If we are ever to attain professional status as engineers, we are going to have to discuss openly some of the myths about "the engineering personality", how they relate to our exploitation, and how we can devise effective ways to challenge them."

—Brad McMillan  
SF PAC Chairman

If you didn't catch Myron Tribus's article in last April's Spectrum, you should check it out. It's entitled "The Engineer and Public Policy Making", and it's one of the best articles ever to appear in Spectrum. In it, Dr. Tribus makes the point that the engineering personality combined with the nature of his education keeps him from attaining positions of power and influence.

According to him, the engineer is typically willing to share information, to suppress his emotions, and to subordinate himself to the team effort. He then gets an education that teaches him how to solve problems, not how to determine what problems ought to be solved. The result, the article points out, is that the engineer is kept "on tap, not on top".

I agree with Dr. Tribus. These factors do tend to keep engineers from attaining any real power. They even keep him from getting just compensation and recognition for his contribution to the general welfare of society.

But these factors wouldn't be keeping the engineer down if it weren't for people who have learned to exploit him. The engineer has a great deal of social and psychological pressure put on him to conform to the stereotyped role defined for him by others.

Consider the myth that the engineer has the ability to deal with things but is inept in dealing with people. There is no fundamental reason for these two capabilities to be mutually exclusive. There is, however, a great advantage in having the engineer believe he does not understand how to deal with people. First, it keep him designing and working with things.

Second, and more important, it keeps him from discussing his exploitation with others, because he feels inept in doing so.

This myth is true only if we continue to believe it. If we are ever to attain professional status as engineers, we are going to have to discuss openly some of the myths about "the engineering personality", how they relate to our exploitation, and how we can devise effective ways to challenge them.

—Brad McMillan  
SF PAC Chairman

Brad McMillan refers to Myron Tribus's article, "The Engineer and Public Policy - Making." Excerpts from this article follow. When you read this, you will see how his remarks apply to our involvement.

Tribus refers to the "Emphasis on solving the given problem: Engineering students are usually given problems. They have very little experience in finding their own problems. And as they enter the world of work they learn to solve more and more complex problems. However, they have little or no expertise in deciding what ought to be solved.

There are other traits, of course, that are reinforced by the schools and the canons of ethics of the engineers. And, in sum, these characteristics combine to produce a certain approach to solving life's problems—an approach called the "engineer's approach."

He points out our strong points as well as our weak points.

## **"Engineers as problem-solvers**

Anyone with any experience in dealing with lawyers—particularly those in Washington, D.C.—will appreciate the vast differences between the lawyer's outlook and that of the engineer and scientist:

- Engineers and scientists are programmed to tell everything they know; lawyers tell only what they must.
- Engineers and scientists want to be sure the person they are informing really understands the situation, whether friend or foe; lawyers want to be sure the person is a friend.
- Engineers believe there is a "payoff function" that should be optimized for the system as a whole; lawyers don't bother looking for it.

- Engineers are team players—they are willing to subordinate themselves to the team, believing that if they do well, they will be rewarded; attorneys prepare for power struggles.

- Engineers and scientists believe the right solutions will inevitably win out, that time is on the side of truth; attorneys harbor no such Boy Scout illusions—they say they compete in a court of law, not a court of justice; they know that the guilty often go free and the innocent are often punished; and they know that the outcome is as sensitive to style and tactics as it is to fact.

- Engineers are taught to serve—to be on tap, not on top. Read again the "IEEE Code of Ethics for Engineers." The engineer's image is that of society's faithful servant. Attorneys believe they belong on top; power and decision-making are rightfully theirs.

These qualities often put the engineers at a disadvantage, especially when negotiating with an attorney. The principal business of Government is negotiation. People, in fact, do have real differences of opinion and real differences in their values. Engineers strive to find the happy solution that will satisfy all parties. But many social problems have no solutions, in the engineer's sense of the word—only adjustments achieved through negotiation. Since technical people seek "solutions," not adjustments, negotiation comes hard."

## **"Waiting to be called**

One consequence of the "faithful servant" image is that engineers stand around waiting to be invited into the decision-making process. Unfortunately, the only time they are apt to be invited in is when the situation has deteriorated so badly that it has become desperate. In case of war, or of a natural or a man-made disaster, the nontechnical people will allow technical people to disrupt their lives. But in the absence of serious, immediately perceived threats, the average citizen is apt to consider the technical person as an unwanted busybody.

If you are constructed as I am, you will not be satisfied merely to write your reports, play with your computer models, and talk to other engineers about the coming catastrophes. You will want to do things that affect the outcomes. You will not want to wait until things become so desperate that people come to you; by then it may be too late. You want to see some action now, while there is yet time.