Can / Am EMTP News

Voice of the Canadian/American EMTP User Group

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Note : The present file is a modern recreation of the original 3-column manuscript produced at Virginia Power by Editor Grebe using keyboard text (no fonts, etc.) that was supplied by W. Scott Meyer. Editor Grebe wrote the final two stories. During July of 1994, the old issues published by Virginia Power were recreated in Portland using 1994 newsletter publishing standards. I.e., Dr. Meyer used Word-Perfect with two, non-threaded columns. This present issue is the fifth and final one to be recreated. It follows OCT89, using the same general method. Spelling and other minor mistakes were corrected as they were discovered. Editor Grebe's clip art is missing.

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Cal Poly EMTP Short Course Held, July 17 - 21

San Luis Obispo, California, was the site of the second EMTP/ATP short course of 1989. Offered by the Electric Power Institute of Cal Poly, the course provided a variety of EMTP related information.

The course was organized by Profs. Saul Goldberg and William F. Horton of the Electrical Engineering Department of Cal Poly and the course faculty included: Profs. Goldberg and Horton; Prof. Ramon Betancourt of San Diego State University; Co-Chairman Meyer and Editor Grebe of the user group; Mark McGranaghan of Electrotek Concepts; Demetrious Tziouvaras of Pacific Gas & Electric; and Laurent Dube, author of the new TACS.

The course was given in the Tandem Laboratory of the Computer Science building. Each participant had his own PC AT-compatible Tandem computer with and EGA-compatible color graphic monitor and an Epson dot-matrix printer. The intructor's computer monitor was connected to a projection system allowing demonstrations to be easily viewed by the entire class. Also, a demonstration of the new 80386-based Unix EMTP was given by Laurent Dube.

Much of the first day of the course was dedicated to allowing the participants to become familiar with the PCWRITE editor, running EMTP data cases, and gaining access to the network system. The network provided easy distribution of EMTP materials. The remainder of the week was divided between EMTP theory, practical examples, and TACS information. In addition to class during the day, the participants had access to the computer lab each evening.

The new control system modeling (TACS) was unveiled

to the course participants by its author, Laurent Dube. *"The new version of TACS is the result of work initiated in 1985 with the intention of providing the EMTP users with a general modeling tool inside the EMTP itself".* Mr. Dube spent several hours describing the capabilities of the new TACS as well as explaining several examples illustrating the structure of data.

Questions about future offerings of the short course may be addressed to:

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News about MS - DOS Version of ATP

The separate interactive plotting program "TPPLOT" now is available for use on MS-DOS computers. Details dominate a 9 page article in the June issue of EMTP News: "MS-DOS Version of Interactive Plotting Program TPPLOT," by Drs. Meyer and Liu. Also explained is that both "TPPLOT" and "WINDOWPLT" have been enhanced substantially in recent weeks. Connection to new types of ".PL4" plot files has been one important advance, as following paragraphs explain.

Modified structure for ".PL4" plot files was required by troubles that were discovered during April at the Florida EMTP short course. See the preceding newsletter. Yes, old ".PL4" plot files have been repaired (and now function normally), but in addition, there now are two new alternatives. FORMATTED ".PL4" files are a second alternative that should be popular among persons who simulate using computers that are not Intel-based (and hence do not run MS-DOS). The underlying concept is to have the EMTP create conventional ASCII files than can be passed to an MS-DOS computer for plotting. C-like file structure is a third alternative. Compatible with C-language programming, such a file remains UNFORMATTED but it allows random access. With no special characters to create possible incompatibilities with future compilers, the C-like ".PL4" files should be more nearly universal once hardware (e.g., Intel microprocessors) has been fixed. For example, the all-important compatibility between 80386-based Unix and MS-DOS already has been verified by David Szymanski, who intends to have his Unix EMTP create such files.

The MS-DOS simulation half of the EMTP, TP1.EXE, can produce C-like ".PL4" files, but not 'FORMATTED' ones. It would be easy to add the 'FORMATTED' capability, but memory would be lost in the process. Since MS-DOS allows better plotting alternatives and capabilities than any other system, it is difficult to image a user wanting to move his ".PL4" file to another computer for plotting. If some reader has good reason to disagree, ATP developers in Portland would like to be informed.

Mustafa Kizilcay's popular interactive plotting program "PCPLOT" should offer compatibility with C-like ".PL4" files in the very near future. By telephone, he informed ATP developers in Portland that Borland's Turbo Pascal (his programming language) has no trouble reading the new ".PL4" file type. Whereas Mr. Kizilcay obviously could honor 'FORMATTED' files as well, this is not a priority because such files can be converted to C-like format by a special command of "TPPLOT". For details, the reader is referred to instructions for the new plot command "C-LIKE" within the "HELP" text of "TPPLOT".

The new "FORM" command of both "TPPLOT" and "WINDOWPLT" allows selection among the three different types of ".PL4" files. If no such selection is made, the old, original ".PL4" plot file is assumed, thereby assuring continuity with the past. If the wrong type of file later is connected, the programs generally will die, so the user should be careful.

The "PL4" command of both "TPPLOT" and "WINDOWPLT" provides the user with a menu of available ".PL4" files, and allows him to select among these easily. There no longer is need to key the name of the desired file as would be required by the "FILE" command. Response to the first "PL4" command will be delayed noticeably as the internally-generated DOS command "DIR *.PL4" is executed, and the resulting directory is processed. But response to the second or later such command will be immediate, as the stored list of files simply is redisplayed.

The "CACHE" command of "TPPLOT" allows the superposition of an arbitrary number of previously-saved plot frames. The display of curves from two or more ".PL4" plot files on the same graph are a free fringe benefit. The superposition logic does not know or care from where the plot points came. Also, it requires no extra memory. Any curves that can be plotted one at a time also can be plotted together as a group using the superposition feature.

The "HELP" command of "TPPLOT" has been extended to allow information about a single topic only. It operates in simple, logical fashion. As an illustration, the user who wants information about the "CACHE" command merely sends "HELP CACHE". If nothing follows "HELP", all messages for all commands are displayed in alphabetical order.

Each bit-mapped screen plot of "TPPLOT" or "WINDOWPLT" is retained until the user sends a carriage return <CR>. This is because plots can not be scrolled, and the programs can resume character I/O only after erasing the preceding graphics.

Dimensioning of both "TPPLOT" and "WINDOWPLT" has been increased to use nearly all available RAM of MS-DOS. Whereas slow starting was mentioned in the June issue of EMTP News, this problem has been solved thanks to the assistance of computer expert David Szymanski. Not only has initialization time been reduced from the reported 23 seconds to a tolerable 3 or 4, but the disk file has been reduced in size from 509K to 189K bytes. Readers should ignore previously-published concerns.

The "OS" command of SPY has been added to both "TPPLOT" and "WINDOWPLT" to allow access to the operating system MS-DOS without ever leaving the FORTRAN program. Either an individual command can be sent to DOS, or a DOS shell can be opened for more extensive dialogue. The latter alternative was inspired by Portland-based ATP developer Laurent Dube.

The "@" command of SPY has been added to both "TPPLOT" and "WINDOWPLT" to allow the modularization of commands in data files. The "@" is to be followed by the name of a disk file from which data next is to be read. One or more blanks are optional as a separator (preceding the file name). Nesting is not yet allowed, however. An illustration of the "CACHE" command is provided by the "@" disk file CACHE.PLT which produced the example at the start of this article.

GEOGRAF makes some 13 different fonts available, although previously only the default font was used. Now, three different fonts, user-controllable via the "SET DATA" command, are used by "TPPLOT".

Some 3 Kbytes of RAM recently have been gained by reform of the connection to library functions. The work was done in cooperation with David Szymanski for Unix of the 80386, where the aim was to speed execution. But for MS-DOS, the greatest problem has been a shortage of memory. The same procedure that sped Mr. Szymanski's simulations under Unix has gained memory for the MS-DOS version.

But RAM also has been lost, recently, to larger program dimensions. List size 26 has been increased from 50 to 84 at the suggestion of Gabor B. Furst Consultants of Montreal, Canada. As Mr. Furst pointed out, 3-phase, 3-winding transformers require 9 phases, whereas former dimensioning was limited to seven phases (7*7 = 492). A second increase of dimensions had to do with switches. If exceeded, a KILL=1 overflow error for list size 6 would be set in overlay 14 near S.N. 4567. Both Nebraska Public Power District and Ebasco Services had experienced such an abortive termination. A single dependent vector was involved, and its size has been increased by 67% for all program versions and all dimensioning.

The SPY "PLOT" command was inoperative for a period of about three months. The trouble began with the switch to the new Lahey compiler (F77L Version 3.0), and it ended with the introduction of the C-like ".PL4" file mentioned earlier. The window of trouble was the months of February, March, and April, as best can still be remembered. A corrected version of TP1.EXE now can be supplied, of course.

PKWARE's file compression software recently was renamed from the established name PKARC to the new PKZIP for unknown reasons. Well, the mystery has been clarified by John C. Dvorak in his "Inside Track" column of the May 30-th issue of PC Magazine. There was legal trouble. The only unclear point concerns whether it is legal for former recipients of PKARC to continue to use the old PKWARE software. The reaction of informed readers would be appreciated.

The new TACS will not be a part of any future MS-DOS version, it would seem. There just is not enough memory for the code within the 640-Kbyte limit of MS-DOS. So, the old TACS will, of necessity, be retained for years to come (as long as DOS remains important for support of the EMTP). The ATP UTPF will contain both new and old TACS, and probably both will be passed along for all computers that are not short of address space. But the MS-DOS translator had to be modified to destroy the new TACS, allowing only the old TACS to pass through and appear in the resultant FORTRAN.

Empty ".PCH" punch files were the subject of a complaint by Bob Zavadil of Nebraska Public Power District (NPPD). ATP developers in Portland agreed that such accumulations were sloppy, and should be eliminated. Previously, for each data subcase that was processed by TP2.EXE, a ".PCH" file would be created whether or not any cards were punched. In the future, when the ".PCH" file is disconnected, it will be deleted unless two or more card images exist.

Special dimensioning of TP1.EXE was been performed on April 21st for John Reckleff in Columbus, Ohio. While ATP distributors in Portland can not afford the time for much of this, they are willing to accommodate users with really good reasons. In Mr. Reckleff's case, experimentation of graduate study at Ohio State University required unusual proportions that overflowed the standard dimensioning. In the process of satisfying Mr. Reckleff, a special new data card for "VARDIM" was developed to allow the proportional scaling of all list sizes.

Prof. Iravani of the University of Toronto will be the

first to be sent MS-DOS object files. This is so that he and his associates can dimension the MS-DOS version of ATP themselves. Both the Lahey F77L compiler (we recommend the new Version 3.0) and a compatible overlaying linker are required, of course. Whether the full Phoenix PLINK86-Plus is required remains to be seen (the much cheaper Lahey Plink possibly is adequate). In any case, it seems likely that others will follow the University of Toronto and do their own dimensioning of the MS-DOS version of EMTP.

The CGA version of Mustafa Kizilcay's interactive plotting program "PCPLOT" has been found by a user near Toronto, Canada, to produce garbage text on the screen. Yet there was no such trouble using CGA at the Florida EMTP short course. Why are some computers compatible and others are not? Is the problem more severe for "PCPLOT", which relies on built-in graphics of Borland's Turbo Pascal, than it is for "TPPLOT" (which uses GEOGRAF)? If any reader can add understanding, it would be appreciated.

DOS Extenders for 80386 Give ATP Virtual Memory

Virtual memory management for the ATP running under a DOS extender on Intel 80386-based computers now is available. This was reported in two articles in the June issue of EMTP News. Chun-Heng Chiang of Taiwan Power Company (Taipower) continues his story about Salford software in a 2-page article entitled: "Salford 'DOS Extender' for 80386 Gives ATP Virtual Memory." David Szymanski of Wattsburg, Pennsylvania, reports on software from North America in his own 2-page article entitled: "Another DOS Extender and Unix used to Support EMTP on Intel 80386-based computers."

Both DOS extenders do generally work, and do provide the all-important virtual memory management. But serious problems exist for some EMTP data cases. Some cases solve correctly, whereas others do not, for reasons that are not yet understood. Until simulation can be made reliable, usage by others for support of the EMTP can not be recommended.

About that virtual memory of Salford, two Mbytes of RAM were adequate to avoid paging within the time-step loop for the small test cases that were considered in Taipei. BENCHMARK DC-3 provides an illustration. For this data, the simulation is correct, and time spent within the time-step loop was not much affected by program dimensioning. Complete EMTP versions (including SPY) have been created for 0.85, 3.0, and 4.0 times default dimensions, and DC-3 was solved many times. Times spent within the time-step loop vary a little, with the fastest taking 7.52 sec and the slowest taking 8.9 sec. These times are for a 20-MHz ACER computer.

Starting the Salford EMTP is quick. From the time the command to begin execution ("RUN77 ATP") is sent until the opening prompt ("EMTP begins ...") is seen, only 4 seconds are required with the EMTP sized at 4 times default dimensioning.

Minimal disk space is another advantage of the Salford DOS extender. The operating system itself occupies negligible space by Unix standards: about 30 Kbytes in addition to the 68 Kbytes of MS-DOS Version 3.3. The disk file storing the executable EMTP has size 1.485 Mbytes --- a figure that is independent of program table sizes. Nothing comparable to the mandatory, extra "swap space" of Unix is required.

A single megabyte of RAM allows EMTP simulation using the North American DOS extender, Mr. Szymanski reported. On the other hand, with just 1 Mbyte of RAM, there was massive paging within the time-step loop. For BENCHMARK DC-3, the disk light seemed to be illuminated almost continuously, and time for the simulation was an artificially large 24 CP seconds. With RAM increased to 2 Mbytes, the time for DC-3 dropped to 10 seconds, and with 4 Mbytes, to 9. This was using the same 16- MHz AT&T 6386 as mentioned in past reports from Pennsylvania. The EMTP being tested was complete except for an absence of SPY (i.e., about 8K of the 60K lines of EMTP FORTRAN were missing), and tables were sized at two times default dimensioning.

The use of scrollable windows is another advance that was reported by Mr. Szymanski. Were there not other problems (i.e., with the EMTP itself), this would be very important.

What to do next with the two unreliable EMTP versions has yet to be decided. ATP developers in Portland will have an 80386-based computer beginning in August, so they may well look at one or both of the alternatives soon.

Unix EMTP News from Dave Szymanski

David Szymanski's own windowing software to support EMTP on 80386-based computers that run Unix will be unveiled to the general public for the first time at the California EMTP short course. At least these are the current plans, as mentioned in a separate article about the Cal Poly EMTP short course.

The general public within the USA will be offered the 80386- based Unix package to support EMTP following fine tuning and acceptance by Dr. Meyer, Prof. Leskovich,

and Mr. Dube. The latter has particular interest in the correct operation of his new TACS code, of course. Within the USA, a detailed description and ordering information probably will be mailed directly to all known ATP-interested parties.

For Canadians, no decision has yet been made. Exportation of the AT&T 6386 by Mr. Szymanski seems to be prohibited by agreements between AT&T and the Italian computer maker Olivetti for selling the common 80386-based computer outside the USA. But the problem is being worked on. Published rumor indicates that AT&T is considering the selling of another 80386-based computer that would not involve Olivetti. More precise information should be available soon.

Prof. Tom Leskovich of the Beaver Campus of Penn State (located in Monaca near Pittsburgh, Pennsylvania), has made possible the next round of EMTP experimentation using Unix on 80386-based computers. Some time ago, he ordered two more AT&T 6386 computers, with these most recent additions being higher-speed (20-MHz) "tower" models that include networking, a different version of Unix (although still System V, Release 3), MIT's X Window System, more memory (a total of 12 Mbytes), cartridge tape drives, and Weitek acceleration of the floating-point computation. All hardware and software was available by mid-June, and has been the object of intense experimentation that should be reported in the next (September) issue of EMTP News.

The cheapest run-time license for 80386-based Unix now costs just under $300 -- up from the $150 of a year or two ago. Certainly OS/2 seems less threatening, and one major vendor has had financial problems (Microport filed for protection from creditors under Chapter 11 of the bankruptcy laws). Unix for the 80386 is a big, sophisticated operating system (48 high-density floppy disks when last counted). It is not clear that a price less than $300 ever was realistic. Advising customers about such a complex distribution is expensive.

Miscellaneous News from EMTP Developers in Portland

A voltage difference now can be requested for output using the pair of terminal node names. Previously, the identification required either a column-80 punch on a branch card, or use of a branch name. But a voltage difference of interest might not correspond to any single branch. The new output request avoids the addition of a very high resistance to do the voltage sampling.

Relay modeling within the EMTP has been talked about for at least half a dozen years. But little has been done, presumably because of the difficulty obtaining data to describe the relays of interest. Several persons attending the Florida EMTP short course were interested in the subject, and one hopes to pursue such modeling in the months ahead. Using ATP, the concentration would be on TACS, of course. That is, relay modeling would be done in EMTP data rather than EMTP code (FORTRAN). Laurent Dube's new TACS, with its increased power and flexibility, are expected to be important. More will be known after the California short course next month, where key individuals are scheduled to gather.

Laurent Dube's new TACS has been added to the UTPF of ATP, increasing this by 25768 lines. As of July 1st, the UTPF count had reached 86439 card images -- about equal to the 1981 peak that preceded the removal of "HAUER SETUP". Rules of translation have required modification for those systems (only MS-DOS at present) that are to discard this powerful, new modeling. Also, word-organized machines such as CDC and Cray will require special modification of their translators when next they are considered. But most computers offer virtual memory management and a word structure with 4-byte integer and 8-byte floating-point variables. As new translations are created for such computers (VAX/VMS, Apollo Aegis, Sun-3, and 80386-based Unix, etc.), they offer both the old and the new TACS, and FORMATTED ".PL4" files.

PostScript-compatible laser printers soon should be usable for EMTP plotting without added royalty thanks to creative experimentation by Bob Meredith of New York Power Authority (NYPA) in White Plains. For those who do not know, PostScript is a registered trademark of Adobe Systems, Inc., which pioneered and now dominates high-end, bit-mapped graphics. Users of Postscript printers are advised to look for more information in the next (September) issue of EMTP News.

The most widely used dialect of EMTP in the world today is ATP, which is licensed for more than 200 sites. About half of these are in the United States and Canada, although many more individuals use ATP overseas than in North America (i.e., the sites overseas tend to be larger). Also, many more foreign licenses for ATP should be added later this year, as distribution spreads in the People's Republic of China, Latin America, and India. LEC membership of the latter two EMTP user groups has yet to be completed. In terms of market share, BPA's EMTP would seem to be the clear loser, with usage outside of Portland rapidly plummeting toward zero. The commercial EMTP version of DCG/EPRI has enjoyed substantial distribution among EPRI members and others who have special arrangements that avoid payment of the associated royalty. The latter include educational and governmental institutions of the USA, Canadian provincial utilities (via CEA), two European and a handful of Japanese companies. But has the first sale of DCG/EPRI's commercial EMTP version yet occurred? More than five years after DCG made its historic decision to attempt

distributing EMTP using EPRI as a partner, the first customer who has purchased at prescribed (i.e., staggering) royalties has yet to be located. Have readers heard of any?

The viability of Microsoft's OS/2 as an alternative to Unix is prominently questioned in the June 27th issue of PC Magazine. Popular columnist John C. Dvorak begins his monthly observations with the summary conclusion that "Microsoft's OS/2 strategy is in deep trouble." Also troubled is IBM's proprietary Micro Channel Architecture (MCA), according to columnist William F. Zachmann on pages 83 and 84. Those who believe that IBM and Microsoft are still in control of Intel-based PC evolution are advised to read these two articles. Industry-standard Unix and EISA (the new 32-bit bus of clonemakers) look increasingly attractive for 80386- and 80486-based computers.

Ebasco Services in New York City is attempting to connect the plot-less VAX/VMS EMTP object files (distributed with the cooperation of Pacific Power and Light in Portland, Oregon) with its own CalComp plotting. The most recent idea is incredibly simple. If Ebasco succeeds, the news will be published in the next issue of this Newsletter.

Unused variables of EMTP FORTRAN recently have been identified by Bob Meredith. This is yet another of his contributions. EMTP developers in Portland were astounded by some of the information, which had gone unobserved during their own recent compilations using DEC VAX/VMS, DEC Unix, Sun Unix, Apollo Aegis, and MS-DOS computers. From every new computer and/or compiler the careful observer can learn something, and this has been forcefully illustrated by Mr. Meredith's latest revelations. EMTP FORTRAN is lighter by about 100 lines as a result. So, a tip of the ATP hat to Mr. Meredith and the computer expert who supports him at NYPA, Mr. Bob Schultz. NYPA is a valuable contact of ATP development.

Unix from Apollo has arrived faster than most Aegis users ever could have imagined. BPA provides a good illustration. Some months ago, many boxes of revised manuals and associated 8-inch floppy disks were received from the Apollo factory. These were associated with the long-awaited, massive update to Aegis version SR-10. Well, Drs. Meyer and Liu were surprised to note that not only had the proprietary operating system Aegis been supplied, but also two versions of Unix! In the past, Unix could be obtained from Apollo, and used, only if it had been purchased separately. Now, it is being distributed free of extra charge. Although Apollo only has one FORTRAN compiler and associated manual, there are three versions of most manuals associated with the operating system: one for Aegis, one for Berkeley Unix, and one for System V Unix.

Giant Hewlett-Packard (H-P) has purchased financially-troubled Apollo Computer for $476 million as first announced on April 12th. With talk about the merging of product lines, it is easy to imagine that Apollo's Aegis operating system will be an early casualty. Even if it continues, it is hard to imagine that it will be the object of substantial, new investment. High-end H-P workstations run Unix, of course, using both Intel and Motorola CICS processors. H-P also has its own RISC processors. Since both H-P and Apollo were founding members of OSF (the Open Software Foundation), there would seem to be no disagreement about the future evolution of Unix.

Intergraph Corporation is a manufacturer of workstations that has moved to standard Unix running on its own high-performance, RISC-based hardware. Intergraph began selling CAD software to run on DEC hardware, but has since shifted to its own computers. An expert from the corporate headquarters in Huntsville, Alabama, explained that Intergraph runs standard Unix (AT&T System V, Release 3) and offers the Green Hills FORTRAN compiler --- both products that already are used to support ATP. Maximum workstation speed is rumored to be increasing explosively, to some 60 MIPS by the end of the year. Are there Intergraph users with EMTP interest? If so, who and where are you?

A Sun SPARC owner in the United States who has: 1) no ties to EMTP commerce, 2) a FORTRAN compiler, and 3) EMTP interest, is being sought by ATP developers. Beyond workstations based on CISC microprocessors from Motorola and Intel, Sun Microsystems licenses its own architecture (SPARC) that is said to ensure binary file compatibility among different hardware. Portland-based ATP developers hope this means that Sun EMTP FORTRAN could be compiled on one SPARC machine and then linked on any other SPARC machine. If so, future Sun support and distribution should be much easier.

The OS/286 version of the program has some troubles according to Khin Swe of Ebasco Services in New York. Without virtual memory management, all DOS extenders for 80286-based computers have the inherent advantage of requiring excess memory, recall. What really is needed is careful study using a new translation. Whether time can be found for this in the near future remains to be seen. Work with a DOS extender for 80386-based computers seems to be more important, so probably will come first. See a separate article summarizing status for 80386-based DOS extenders.

DECstation 3100 is the name of a very high-speed personal computer that is sold by DEC (Digital Equipment Corporation). It was EMTP benchmarked at BPA by Mr. David Stefonek and Drs. Meyer and Liu, as they report in the June issue of EMTP News. Interested readers are referred to the 2-page article entitled "Benchmarking of

DEC's New RISC Workstation Using ATP EMTP." This provides more detail than the preceding issue of Can/Am EMTP News.

Free EMTP Theory Book available from BPA

Every serious EMTP user should have a copy of BPA's 600-page EMTP Theory Book on his bookshelf. After all, it only costs the price of a postage stamp to mail the written request for this public-domain document that was paid for wholely by BPA. A few more details were given in the September issue of the newsletter. Most important of these is that the offer is limited to the United States and Canada (others in the world are advised to contact their national or region EMTP user group), with only one copy per company or university. The response has been phenomenal since the first announcement to ATP users in the first issue of the Newsletter (September, 1988). Between January and April an additional 33 requests were honored, and since May, 14 more. Well, no doubt some readers still are unaware, so the announcement is being repeated. Written requests (yes, FAX would be acceptable) should be sent to:

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Of course, delivery services typically require a street address. For the record, it is: 905 N.E. 11-th Avenue, with different Zip Code 97232.

Minneapolis : Power Electronics, 1990 Short Course ?

Power Electronics are a good application of EMTP according to Prof. Ned Mohan of the University of Minnesota (Minneapolis, Minnesota, USA). Prof. Mohan is a long-time EMTP user and now the principal author of a new book that has just been published by John Wiley and Sons. Abundantly illustrated, this impressive 685-page work is entitled "Power Electronics: Converters, Applications, and Design." The Preface says that the book can be used by itself, without simulation tools, but that "... we make use of general purpose circuit simulation programs such as SPICE and the ATP version of the EMTP ..." In a letter to ATP developers in Portland, Prof. Mohan indicates that he is developing some 60 illustrative EMTP data cases to accompany his book, and all of them should be compatible with the MS-DOS version of ATP. "We use PCPLOT for plotting and TP2 for harmonic analysis. ... we would like the disk containing the problem data files and the manual (which describes the nature of the problems, circuit diagrams and possibly the solutions) to be distributed by the publisher (John Wiley), or the University or directly by us."

July of 1990 might see another EMTP short course, this one to be offered by the University of Minnesota. After 10 years absence, the IEEE PES Summer Power Meeting will return to Minneapolis in 1990, and faculty at the university (Profs. Mohan, Albertson, Riaz, etc.) are thinking of scheduling their EMTP offering either the week before or the week after. Like the Florida and California courses that already have proven the technique, the Minneapolis course would use a laboratory filled with some MS-DOS personal computers, and have big-screen projection of the monitor of the instructor's machine. A brand new, air conditioned building now houses the Electrical Engineering Department, so there no longer is a concern about torrid summer temperatures. The IEEE PES Summer Meeting is held in downtown Minneapolis, which is on the other side of the Mississippi river from the engineering campus of the university. The separation might be a mile and a half, with frequent city bus service.

From the Editor's Desk

An updated user group member list is included with this issue of the newsletter. The initial subscription period has ended, however interested parties may subscribe to the newsletter at any time by contacting the editor at the address given. One subscription is all that will be needed, no need to renew each year. (please contact the editor if your address or computer/experience changes)

Remember, if you have EMTP/ATP information that you wish to share with the user group, please contact the editor.

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Remember GEOGRAF Plotting

Remember GEOGRAF plotting drivers may be obtained from:

GEOCOMP Corporation
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