IFIP newsletter
International Federation for Information Processing

LATE NEWS

The Organizing Committee of IFIP Congress '89 is pleased to announce that *Mr. John Young (USA)*, president and CEO of Hewlett-Packard Co., will be the business keynote speaker at the opening ceremony of the Congress.

Editor:
Dr. Jack L. Rosenfeld

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COUNCIL MEETS IN GENEVA

IFIP's Council met in Geneva 1-3 March and made several significant decisions. Technical Committee (TC) activities were reported and appear very healthy. Financial matters were a major topic of discussion; important steps were taken. Preparations for IFIP Congress '89 are progressing smoothly; the technical program is excellent, and it looks as if the Congress will be a success. The mission of IFIP was discussed and further refined.

The Council was preceded by two days of meetings of other related IFIP bodies: Executive Board, Technical Assembly, Activity Management Board, and several committees. This article summarizes the major actions taken during the week by these groups.

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KNUTH TO ADDRESS CONGRESS '89

Prof. *Donald Knuth (USA)* will be the technical keynote speaker at the opening ceremony of IFIP Congress '89 on 28 August in San Francisco. Prof. *Knuth's* talk, entitled "Theory and Practice," will discuss how theory and practice in software development and computer science feed and build on each other. He will illustrate this interrelationship with examples from the creation of TEX, his document production system. Prof. *Knuth* is renowned throughout the world for his fundamental books on computer programming and his work on compilation techniques, algorithms, and software for typography. He also has a reputation as an excellent speaker.

Background of the Speaker

In 1960, Prof. *Knuth* received B.S. and M.S. degrees in mathematics from the Case Institute of Technology. He earned a Ph.D. in mathematics from the California Institute of Technology in 1963 and remained on its faculty until 1968, when he joined the faculty of Stanford University. Among his major achievements is *The Art of Computer Programming,* a monumental series of definitive works on algorithms and techniques for programming. So far, three volumes have been published; four more are planned. Over a half million of these books have been sold. Among the many honors he has received are the A.M. Turing Award of the Association for Computing Machinery in 1974 and the National Medal of Science, awarded *by President James Carter* in 1979.

Technical Program

The technical program of Congress '89 will run from 28 August to 1 September. It includes 110 sessions in eight simultaneous streams, comprising 37 invited speakers and 28 respondents, 26 panels, 36 sessions for contributed papers, 8 sessions on major information technology programs, world-wide, and 3 "Birds of a Feather" sessions to discuss results of IFIP and IFIP-related workshops.

The newest entry in this program is a session on Information Technology in the Peoples Republic of China, presented by six Chinese professionals.

Other Congress Activities

The Organizing Committee has prepared a program of tutorials, an exhibit of computer products, systems, and services (to be held in the Moscone Center, along with the technical program), technical visits, a social program of receptions and a banquet, and a sightseeing program.

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FIFTH WORLD CONFERENCE ON COMPUTERS IN EDUCATION

The Fifth World Conference on Computers in Education (WCCE/90) will be held 9-13 July 1990 in Sydney. Such Conferences, held by **IFIP's** Technical Committee on Education (TC3), take place every five years. The Conference will address ***all*** aspects of educational computing, ranging across primary, secondary, tertiary, industry and community education. It will provide an opportunity for people from many countries and backgrounds to meet and exchange ideas and experiences.

The six major streams of WCCE/90 are organized by the individual Working Groups of TC3. They are Informatics Education at the Secondary Level, Advanced Curriculum Projects in Information Processing, Research on Educational Applications of Information Technologies, Vocational Education and Training, Informatics in Elementary Education, and Distance Learning.

Mini-Conferences

In addition, WCCE/90 will provide a venue for these mini-conferences:

Teleteaching 90 is the second in a series of international conferences addressing the topic of educational technology for distance learning. It will include papers, invited speakers, discussion panels and demonstrations.

CBT/90 (Computer-Based Training), hosted by the Australian Society for Computers in Learning in Tertiary Education, will provide an opportunity for professionals in training and education to share their experiences in the design, development and delivery of computer-based instructional resources. It will include presentations on the latest courseware applications in business, industry and government as well as on the latest authoring tools and presentation technologies.

Kids and Classrooms 90, an exciting program involving children and computers, is being planned by the New South Wales Computer Education Group. It will provide an opportunity for delegates to visit "fly on the **wall** classrooms" at the Conference, where local teachers will conduct lessons with local students. For student delegates to the Conference, there will be "hands-on" sessions, where they will have the opportunity to work with computers alongside leading local teachers. This is certain to be an attraction for those overseas delegates incorporating the Conference into a family vacation. Both overseas and local students are invited to contribute to the "Kids and Classrooms Corner," where elementary and secondary students will present their work with computers in their schools.

The weekend prior to the Conference will be the time for practical computer education workshops, including some run by keynote and invited speakers. During the Conference, there will be scheduled public meetings to form new —and rejuvenate old—interest groups.

"Galah" Sessions

The Galah, a member of the cockatoo family, is an Australian bird well known for its habit of gathering in large, noisy flocks. Early morning and late afternoon "Galah Sessions" will provide the opportunity of meeting people from around the world who share special interests in computer education.

Finally an international commercial exhibition will also be part of WCCE/90.

The organizers of WCCE/90 have issued a call for papers, details of which are in the "Call for Papers" column on page 14.

WCCE/90 will offer two special schemes for overseas delegates. For those on tight budgets, there will be Australian Home Hospitality, providing free accommodation in Australian homes during the Conference. The Education Visits Scheme will enable overseas delegates to visit schools, colleges and universities in Sydney and elsewhere before and after the Conference.

Pre- and Post-Conferences

A pre-conference in New Zealand and a post-conference in Japan will provide international delegates with the chance to combine WCCE/90 with visits to other Pacific Rim destinations.

Computers In Education: National Perspective will be held 4-6 July in Auckland. Selected papers will form the basis of workshops, the objective of which will be the production of a working document of conclusions and recommendations on national policies for computers in education. Particular emphasis will be given to educational philosophies and structures that harmonize high technology with the culture of minority indigenous peoples. The workshops during the Conference will be held within the traditional procedures and protocols of the Maori people, with their emphasis on consensus and harmony and of living and eating together.

Advanced Research On Computers In Education will be held 18-20 **July in** Tokyo. Its aim is to explore the application of the latest developments **in information** processing to the field of education.

The International Program Committee chairman of WCCE/90 is Ms. Sandra Wills (AUS), and the Organizing Committee is headed by Mr. John Hughes. Other details of WCCE/90 can be found on page 4 of the September 1988 issue of the ***IFIP*** *Newsletter*. For further information, please contact

WCCE/90
PO BOX 319
Darlinghurst, NSW 2010, Australia
tel. (+612) 211-5855
fax: (+612) 281-1208 ■

TECHNICAL COMMITTEE CHAIRMEN

TC2:	P.C. Poole	AUS 89-92
TC3:	W.A. Brauer	D 85-90
TC 5 :	M. Tomljanovich	I 88-91
TC6:	R.P. Uhlig	USA 86-91
TC7:	P. Thoft-Christensen	DK 89-92
TC8:	G. Bracchi	I 83-89
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TC10:	G.L. Reijns	NL 86-89
TC11:	W.J. Caelli	AUS 88-91

SYMPOSIUM ON SAFETY-RELATED COMPUTERS

*by Dr. Wolfgang Ehrenberger (D) **

From 9 to 11 November last year, IFIP's Working Group on Computerized Process Control (WG5.4) and the International Federation of Automatic Control (IFAC) sponsored an International Symposium on Safety-Related Computers, SAFECOMP 88, in Fulda, F.R.G. The Symposium dealt with safety-related applications of industrial computer systems. This was the most recent of a series of such conferences originated by the European Workshop on Industrial Computer Systems (EWICS) in 1979. EWICS deals with prestandardisation in this field. *Dip/. Ing. H. Wiefels* (D) was chairman of the Symposium's Organising Committee, and *Dr. Wolfgang Ehrenberger* (D), chairman of WG5.4, served as chairman of the International Program Committee.

The symposium attracted about 100 participants from more than 10 countries. The main computer application areas were from nuclear power plants and railways. A smaller, but notable participation was from the aerospace side. Attendees were from industry, regulatory agencies, and universities. Interest from the chemical industry and automobile manufacturers was less than expected.

The presentations dealt with the major aspects of safety-related computers: building such systems, documenting them, and having them licensed and operated. Principal questions, as well as case studies and tools, were addressed. A considerable number of the presentations came from EWICS and dealt with preliminary standards. My rather subjective selection of other important contributions is:

- computer reliability requirements in the aircraft and space industry
- quality management of software, problems in introducing quality management systems and related tools into existing organisations
- tools helping not only to verify the correctness of computer code, but of the design documents as well and in assisting in the verification of machine code
- thinking traps during programming
- formal verification
- the influence of the structure of diverse software systems on their failure behaviour, and testing strategies of such systems

Differing views comparing deterministic versus probabilistic verification strategies were addressed many times during the event. In particular, the panel discussion tried to shed more light on that question. The result was a slight move of the general viewpoint toward systematic approaches. It was felt, however, that the synergism of all methods was most likely to bring about the best results. This was supported, in particular, by the report of a related experiment from the U.S.A.

It is very difficult to reach an overall conclusion on what were the most important problems. A slight majority felt that human aspects, mainly human errors, posed the outstanding problems. Other important topics were methods and standards for specification, construction and verification of safety-related computer systems. Software problems were thought to be more significant than hardware problems. In the future, most help is expected from standards and tools.

During the next SAFECOMP, in Vienna in December 1989, more emphasis will be placed on other areas of application, beyond transportation and nuclear power, and will include data security and artificial intelligence. ■

* chairman of WG5.4

CONGRESS '89 continued from page 1

We call attention to the extensive program of technical visits to manufacturers and laboratories in Silicon Valley. A unique feature is that they are open to all Congress registrants; visits to many of these facilities are normally restricted to U.S. residents. Because of a limited number of visitors permitted, early registration is recommended.

One may find further information about Congress '89 in the ***IFIP Newsletters*** of March 1989, September 1988, and December 1987. To receive a complete program and registration form or to make specific inquiries, one may contact

11th World Computer Congress
Convention Service Center, Inc.
P.O. Box 18-P
Denver, CO 80218, U.S.A.
tel. 1 (303) 831-6338 (9-5 mountain time)
fax: 1 (303) 894-0448
telex 168184 svcctr ut

The Congress program is now set. It promises to be an excellent one. **IFIP** participants from all nations are prged to promote this major **IFIP** event. ■

IFIP NEWSLETTER

Editor:
Dr. Jack L. Rosenfeld
IBM Corporation
Thomas J. Watson Research Center
P.O. Box 704
Yorktown Heights, NY 10598, U.S.A.
tel. 1 (914) 789-7633
telex: 9102400632 ibm yorktown labs
or 137456 ibmresrch ykhg
facsimile: 1 (914) 789-7455
CSNET: ROSENJ@IBM.COM
BITNET: ROSENJ@YKTVMH

Assistant:
Mrs. Doris Engel

Published quarterly by-
IFIP Secretariat
16 Place Longemalle
CH-1204 Geneva, Switzerland
tel. 41 (22) 28 26 49
telex: 428 472 ifip ch
facsimile: 41 (22) 781 23 22

CORRESPONDENTS
TC2 R.K. DeBry
TC3 U. Brauer
TC5 L.H. Fransson
TC6 D. Khakhar
TC9 F. van Rijn
TC11 D. Lindsay

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Kindly submit material for the *Newsletter* three months before the publication date.
Please send the following **IFIP** information directly to the Secretariat: announcements of conferences, workshops, and other meetings; calls for papers; appointments to committees and other positions; and changes of address. The Secretariat is the clearinghouse for all such information; it will forward it to the *Newsletter.*

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A. Alvarez-Rodriguez	E	88-91
M. Ozeki	J	88-91

COUNCIL continued from page 1

At its opening session, Council was welcomed to Geneva by Prof. *Kurt Bauknecht,* representative to the General Assembly (and past-president) of the Swiss Federation of Information Processing Societies. In his remarks, he noted that arrangements are being made for the **IFIP** Secretariat to have access to electronic mail via the University of Geneva. (For an information processing federation, we have been notably slow to apply our technology to our own work.)

Eight of the nine **IFIP** TC chairmen were present in Geneva — perhaps a record for attendance was set. The reports of the TC chairmen dealt more with the administration of the TCs than with the nature of the technical work that the TCs undertake. The latter is generally discussed more fully during General Assemblies (GAs).

To encourage new initiatives and new technical directions in **IFIP** is the major role of the Technical Assembly (TA). Accordingly, *Acad. Blagovest Sendov (BG),* chairman of the TA and **IFIP** president-elect, is attempting to establish new **IFIP** activities in theoretical foundations of informatics and in parallel processing. He reported that scientists with interests in these areas have been invited to meet during **IFIP** Congress '89 to discuss future **IFIP** work.

State-of-the-Art Seminars

Plans for the state-of-the-art seminar on Formal Descriptions of Programming Concepts, organized by the TC on Programming (TC2), were described as proceeding satisfactorily. [It was held on schedule, in April in Rio de Janeiro, and was very successful. — Ed.] On the other hand, the state-of-the-art seminar on Databases, planned for India in December 1988, had to be postponed. More information on these seminars can be found on page 1 of the September 1988 ***IFIP*** *Newsletter.*

Prof. Peter Poole *(A* US), chairman of TC2, put forward TC2's request that **IFIP** "set up a small task force to contact TC2 and TC8 and other TCs to determine how to make a going business concern from **IFIP** seminars and the State-of-the-Art reports." Some discussants pointed out the hazards of engaging in such enterprises. Marketing Committee chairman and **IFIP** trustee Mr. *Hennie Leroux (ZA)* was appointed head of a task group to investigate this matter.

Increased TC Role

During the past few years, IFIP has seen an increase in the role played by TC chairmen. The TA and Activity Management Board (AMB) were formed to handle issues of importance to the TCs. Much of the deliberations in Council and the GA also concern TC activities. A proposal was made at Council that TC chairmen be granted votes in the GA and be elected by the TCs, rather than appointed by the president of **IFIP;** however, no action was taken on this suggestion. Since the TA and AMB are relatively new bodies, it was felt that further **IFIP** reorganization would be premature at this time.

Prof. *Giampio Bracchi (I),* chairman of the TC on Information Systems (TC8), described its efforts to attract more "practitioners." Also, it would like to have more activity in North America. Because **IFIP's** bylaws specify that each Full Member of **IFIP** may nominate one member to each TC, TCs tend to be predominately European and "academic" in membership.

Another issue concerned the **IFIP** bylaw that reserves authority for approval of new Working Groups (WGs) and Specialist Groups to the GA. Council felt that this power should be held by the TA. The Statutes and Bylaws Committee is likely to propose this change to the GA in September. In practice, however, the limitation does not prevent TCs from holding conferences in new areas and establishing task groups to work in these areas. Many such task groups evolve into WGs. a1

World Computer Congresses

Plans for **LIP** Congresses were discussed. The program for the **11th** World Computer Congress, **IFIP** Congress '89, is now complete and is discussed on page 1.

Mrs. Rosa *Alonso* (E), chairman of the Organizing Committee (OC) for Congress '92, to be held in Madrid, reported that it had not been possible to schedule the major annual Spanish information processing exhibit simultaneously with Congress '92, based on the dates initially set for the Congress. Because it is highly desirable to hold substantial computer exhibitions in conjunction with World Computer Congresses, Council directed the OC to investigate the possibility of changing the date of Congress '92 to some time in October, in order to hold the Congress with a major exhibit. In addition, Council discussed the advisability of organizing Congress 492 as a collection of individual conferences organized by **IFIP** TCs, with some plenary sessions and invited speakers and panels covering topics of general interest.

The Site Evaluation Committee reported that proposals have been received to hold Congress '94 in Beijing, Budapest, Hamburg, and Helsinki. The 1989 GA will decide in September.

Improved methods for administering **IFIP's** activities were also planned at Council. New Activity Planning Forms were discussed, which (1) will enable a WG or other **IFIP** unit to place an intended event in the 6-Year Plan well in advance of the event, so that others may know of the event, (2) will permit **IFIP** to keep track of all planned events, and (3) will encourage sound financial planning. It was noted that even when no grant or loan for an event is requested, **IFIP** may well incur financial liability.

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Prof. Kurt Bauknecht (left) welcomes Council to Geneva.

COUNCIL continued from page 4

Although **IFIP's** financial condition looks somewhat more favorable now than it did at the time of the GA last September, Council proposed to raise Members' dues once more. Council also decided to establish Technical Committee funds as a means of giving the Technical Committees more freedom to spend money as they see fit and encourage them to run their events in a way that both promotes worthwhile activities and provides the working capital to hold future events. These financial matters are discussed on page 9.

Concerns about the cost and dissemination of **IFIP** publications were aired thoroughly in the Publications Committee and Council. **IFIP** guidelines for editors and the organizers of events are now available. These and other publications issues will be presented in a future ***IFIP*** *Newsletter.*

The Marketing Committee announced a plan to experiment with a low-cost **IFIP** publication, to determine whether such volumes might have wider circulation and earn larger royalties. The publication is to be a collection of papers on computer security from **IFIP** conferences on that topic.

Council proposed several steps aimed at improving the communication of information within **IFIP,** including a meeting between WG and TC chairmen and the Executive Board, and centralized support for organizers of **IFIP** events. These are reported in an article about communication on page 8.

Matters concerning the International Medical Informatics Association (IMIA) were discussed by Council. IMIA, previously a Special Interest Group of **IFIP,** was granted Affiliate Member (AM) status by the 1988 GA. IMIA itself is in the process of making this transition official. IMIA asked whether the **IFIP** Secretariat could provide headquarters services for IMIA, and Council expressed eagerness to do this. Current plans call for the **IFIP** Secretariat to begin providing services for IMIA at the end of October. IMIA will pay its share of the Secretariat expenses.

Visas to Attend IFIP Events

IFIP secretary Mr. *Jacques Fourot* (F) pointed out that the International Council of Scientific Unions (ICSU) and its Standing Committee on the Free Circulation of Scientists endeavors to insure the ability of bona fide scientists to participate in international scientific meetings. Should anyone organizing an **IFIP** event or wishing to participate in such an event have difficulties with regard to visas, that person should contact Mr. *Fourot,* preferably at least three months before the event. He will, in turn, contact the appropriate officials in ICSU, of which **IFIP** is a scientific affiliate, to help resolve the problem. He can be reached at

Bull SA
121 avenue de Malakoff
75116 Paris
FRANCE
tel. 45.02.94.11
or 40.65.03.83
telex: 614051F BULLSA

Mr. *Fourot,* wearing his hat as IFIP-Unesco Liaison Officer, reported that support from the United Nations Economic, Scientific and Cultural Organization has been decreasing over recent years, from $12,000 US in 1987 to an expected $5,000 in 1989.

Prof. Dr. *Heinz Zemanek (A),* an Honorary Member and a former president of **IFIP** and chairman of the **IFIP** History Commission, reported that the Commission is sponsoring a working conference on the "History of Computing in Europe" in Budapest in October 1990. The John von Neumann Society, the Hungarian member of **IFIP,** is organizing the event.

The mission of **IFIP** received a considerable amount of attention at the TA and Council, and a document describing the mission has been prepared. An article on this page covers this matter.

Future Meetings

The schedule of meetings for the September GA in San Francisco was prepared and can be found in the column "Future **IFIP** Meetings" on page 14. Attendees should note that, unlike previous custom, the GA *follows* the Congress. Meetings will be held 1-5 September. The first day of committee meetings occurs on the last day of Congress '89, a Friday, and the GA will meet from Sunday through Tuesday.

The Council meeting was closed by *President Goldsworthy,* with many thanks to the Swiss host society for its very cordial hospitality. It was a pleasure for many of us who had never seen the offices of the **IFIP** Secretariat to be in Geneva and to visit the Secretariat one evening. We are grateful to have such capable staff as Mme. Roberts, Administrative Manager, and *Mme. Lawson* handling our affairs.

IFIP'S MISSION

The most recent step in **IFIP's** continuing effort to direct its efforts most effectively is the preparation of a statement of **IFIP's** Mission. In July 1988, **IFIP's** president, *Mr. Ashley Goldsworthy (AUS),* sent a letter to General Assembly (GA) members in which he urged them to re-examine why our organization is needed. He explained, **"In** so doing, we will emerge a much stronger, more relevant, and more vibrant organization to meet the challenges of the future." At the 1988 GA in New Delhi, one morning was spent by all participants discussing **IFIP's** goals, in a number of small, round-table groups. Following the discussion, each group presented its conclusions to the GA. **IFIP** vice-president *Mr. Graham Morris* (GB) was charged with summarizing these presentations.

In March, he presented a draft of an **IFIP** Mission to the Council and subsequently amended it, based on Council's response. Following is the latest version of the Mission.

IFIP's MISSION

IFIP's mission is to be the leading, international, apolitical organization that encourages and assists **in** the development, exploitation and application of Information Technology (IT) for the benefit of all people.

1. To stimulate, encourage and participate in research, development and application of IT.

2. To promote international cooperation directly and through national IT societies and, in a free environment, between individuals, national and international governmental bodies and kindred scientific and professional organizations.

3. To assist developing countries in appropriate ways to secure the optimum benefit from the application of IT.

4. To promote professionalism incorporating high standards of ethics and conduct among all IT practitioners.

5. To provide a forum for assessing the social consequences of IT applications; to campaign for the safe and beneficial use of IT and the protection of people from abuse through its improper application.

6. To foster and facilitate cooperation between academics, the IT industry and governmental bodies and to seek to represent the interests of users.

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IFIP trustee *Mr. Hennie Leroux* graduated in Electronic Engineering from the University of Stellenbosch, South Africa and attended the Smaller Company Management Program at Harvard Business School. After serving nine years in the South African Air Force, he spent two years with Hewlett-Packard and lectured for 3 years in Digital Systems and Computer Engineering at the University of Stellenbosch. A subsequent period of ten years was spent in establishing one of the biggest systems houses in South Africa.

Today, he is an executive director of a high-technology investment company concentrating specifically on the commercialization of university research programs.

Mr. Leroux served the Computer Society of South Africa (CSSA) in a variety of roles and became president in 1978 — their youngest president ever. He was made a fellow of the Society in 1982.

He has represented the CSSA in the IFIP General Assembly since 1981 and was a member of the Activity Planning Committee for several years. He was elected trustee in 1984, was instrumental in establishing the African Regional Computer Federation, and served as chairman of the Publications Committee for two years. He is currently chairman of the Marketing Committee and cognizant officer of the Technical Committee on Data Communication (TC6).

When not travelling, he shares his time equally between his offices in Cape Town and Johannesburg. He considers Cape Town as his home, where his family has been for the last 301 years.

He has two daughters, Jacqueline and Lesley-Ann, and a son, Hennie. His available free time is spent playing golf, yachting, and watching rugby. ■

IMPACT OF INFORMATION SYSTEMS ON DEVELOPING COUNTRIES

*by Prof. Subhash C. Bhatnagar (IND) **

A conference entitled Impact of Information Systems on Developing countries was organized jointly by IFIP's Technical Committees on the Relationship between Computers and Society (TC9) and Information Systems (TC8). It took place in New Delhi 24-26 November 1988. It was co-sponsored by The Computer Society of India.

The conference was attended by 40 delegates, of whom 15 were from India and the remaining 25 from 11 other countries, covering both developing and industrialized nations. Twenty papers were presented. The papers included Country Reports from 5 countries and papers on frameworks for information systems development, Decision Support Systems (DSS) applications in developing countries, informatics policy, and Management Information Systems (MIS) applications.

Many presentations highlighted the special economic and socio-cultural context of developing countries and the need to design culturally adapted systems. Examples of such systems were presented. The Country Reports presented the status of informatics in several countries and detailed the role of governments in shaping informatics applications. The need for government intervention and areas to which intervention should be restricted were some of the issues that were discussed.

In the concluding session, a summary of the conference was presented. Some of the broad conclusions were:

- There are significant differences amongst developing nations in the extent of use of computers and availability of trained manpower.
- In terms of application areas, many developing countries share the same priorities of accelerating rural development through computer-based support of planning, monitoring and administration of developmental programs.
- Successful implementation of DSS in some developing countries suggests that effectiveness of many economic and development activities can be improved substantially by the use of DSS.
- Sharing of experiences among professionals working on information systems in developing countries was found to be very useful by the practitioners and academics participating in the conference.

One of the sessions discussed the future course of action, including the formation of a Working Group on developing countries. Future joint conferences by TC9/TC8 were endorsed, and many ideas on themes and venues were generated. Applications of DSS in developing countries was proposed as one of the topics. *Prof. Subhash Bhatnagar* of TC9 and *Prof. Niels Bjørn-Andersen (DK)* of TC8 were to follow these ideas through in their TCs.

Prof. Bhatnagar served as conference chairman and International Program Committee chairman. *Prof. R.* Sachdeva (IND) was Organizing Committee chairman.

Conference proceedings will be edited by *Profs. Bhatnagar* and *Bjorn-Andersen* and will be published by Elsevier/North-Holland in September.■

SECRETARIAT FACSIMILE NUMBER

The masthead on page 3 gives the new facsimile telephone number for the IFIP Secretariat.

Please keep the Secretariat informed of changes of your address, telephone, and other numbers.

* member of TC9

HUMAN CHOICE AND COMPUTERS

TC9 Announces 4th World Conference

*by Drs. Felix van Rijn (NL) **

IFIP's Technical Committee on the Relationship Between Computers and Society (TC9) announces the fourth edition of its major event, the World Conference on Human Choice and Computers (HCC 4). It will be held 9-12 July 1990 in Dublin. The main officers are — Conference Chairperson: ***John Drumm*** (Irish delegate to TC9), Programme Committee Chairpersons: ***Dick Sizer*** (British delegate to TC9 and Chairperson of IFIP's Working Group on Social Accountability (WG9.2)) and ***Riccardo Petrella*** (Commission of the European Communities), and Organising Committee Chairperson: ***Dudley Dolan*** (Irish representative to IFIP).

The previous World Conferences on HCC were organised in 1974 (Vienna), in 1979 (Baden, Austria) and in 1985 (Stockholm). The history of HCC reflects the emergence and maturation of TC9. HCC 1 was the first scientific meeting at an international level between social scientists, computer and informatics scientists, labour union representatives, managers, political economists and representatives of international organisations. It was the first step in the formation of TC9 by IFIP. HCC 2, like HCC 1, covered broad areas and showed that the 'coalition' of the above-mentioned groups had proved stable and that TC9 had taken root well. HCC 3 took a more specialised approach and focussed on national policies around the world for planning and implementing the social use of information technology.

The forthcoming World Conference HCC 4 is aimed at assessing the achievements of information and communication technology (ICT) and establishing priorities for future developments. The specific objectives of the conference are

- to examine existing methods and tools for ICT assessment
- to evaluate the best courses of action for the future
- to disseminate new knowledge to all disciplines concerned with ICT

These three themes will be reflected in each of the four programme tracks: Track 1 (Well-Being) deals with the application of ICT in all areas of daily life. In Track 2 (Work), the main focus is the position of employees. Commercial and business transactions fit into Track 3 (Business). The 4th Track (Government) concerns the evolving role and the inherent responsibility of government at all levels (local, regional, national, and international) concerning benevolent development and application of ICT.

For further information, please contact

Secretary of the HCC 4 Organising Committee
Department of Computer Science
Trinity College
Dublin 2, Ireland ■

* chairman of WG9.3, and IFIP Newsletter correspondent

GROUPWARE TECHNOLOGY WORKSHOP

People in work settings and in non-work situations frequently perform activities in groups. More work time, on the average, is spent in group work and communication than single-worker activities. However, the emphasis of workstation tools has been on support for individual work. This workshop will address the design problems that arise in the development and use of multi-user systems. A term coined in the literature to denote tools and technology designed to support groups working on a related task is "groupware."

The concepts embodied within groupware and collaboration technology have engendered excitement and interest in recent years. Office system vendors are preparing to deliver this new breed of product. Research on collaboration is also active in universities and research laboratories, because technology explicitly aimed at helping groups introduces many challenging, unsolved problems not encountered within single-user systems.

IFIP's Working Group on Office Systems (WG8.4) is organizing a limited-attendance, invitational workshop, to bring together designers and developers of groupware and its underlying technologies, to share and discuss implementation techniques and strategies. It will take place 24-25 August, just prior to IFIP's 11th World Computer Congress. This international workshop will be held in Palo Alto, California under the auspices of WG8.4 and the Special Interest Group on Office Information Systems of the Association for Computing Machinery (ACM).

Prof. ***dr. Alex. Verrijn - Stuart (NL),*** chairman of WG8.4, is general chairman. Dr. Clarence ***Ellis (USA)*** is chairman of the International Program Committee. Local arrangements are being handled by Mr. ***Enrique Godreau*** (USA). ■

CAPE '89

Computer Applications in Production and Engineering

*by Prof. Fumihiko Kimura (J) **

The International Conferences on Computer Applications In Production and Engineering (CAPE) identify and encourage research, development and applications of computer technologies that will improve manufacturing activities. They are held every three years by IFIP's Technical Committee on Computer Applications in Technology (TC5), where the primary aim is to promote interactions between theoretical aspects of computer science and practical applications in industry.

The third CAPE will be held 2-5 October in Tokyo.

Invited speeches will be given by ***Dr. T.*** Sekimoto, President of NEC. Japan, and IFIP vice-president ***Prof. Asbjørn Rolstadås (N).*** The topics wil be 'High Technology Developments in The Japanese Electronics Industry' and `Management Information Systems in Computer-Aided Manufacturing,' respectively. Tutorial lectures will be presented on the first day of the conference. Seventy-eight submitted technical papers and ten coordinated keynote papers will be presented during the following three days. Technical visits to Japanese industry and research institutions will also be provided.

For details about registration and attendance, please contact the following:

Conference Secretariat — CAPE '89
Conference Department
Business Center for Academic Societies Japan
Hongo 3-23-1, Bunkyo-ku, Tokyo 113, Japan
tel. +81-3-817-5831
fax: +81-3-817-5836
telex: 2722268 BCJSP J ■

* chairman of International Program Committee of CAPE '89

WHO'S WHO IN IFIP: PROF. ASBJØRN ROLSTADÅS

IFIP vice-president *Prof. Asbjørn Rolstadås* was born in Trondheim, Norway in 1944. He studied Mechanical Engineering at the University of Trondheim and remained there for postgraduate work, receiving the degree of Doctor of Engineering in Production Engineering from the Norwegian Institute of Technology. His professional career has been centered at the Institute, where he teaches, develops courses, and performs research in production engineering. His most recent research is in the area of computer-aided production management. At present, he is a Visiting Professor at the University of Washington, in Seattle.

Prof. Rolstadås is the author of 130 papers and 6 textbooks. He edited an **IFIP** state-of-the-art book, *Computer-Aided Production Management.* He is currently launching an international journal on production planning and control.

He is a member of several technical societies, on the editorial boards of two journals, on the boards of directors of various industrial corporations, and organizer of numerous international conferences.

In Norway, his work for the Norwegian Computer Society culminated in his serving as president from 1979 to 1980.

His contact with **IFIP** began in 1977, when he was appointed to the Technical Committee on Computer Applications in Technology (TC5). He was chairman of the Working Group on Computer-Aided Production Management (WG5.7) from 1978 to 1983. He served as TC5 chairman from 1983 to 1988. He became Norwegian representative to the General Assembly (GA) in 1982 and continues in that role to this day. He was elected vice-president of **IFIP** by the 1988 GA in New Delhi and brings to the Executive Board his experience as chairman of an **IFIP** TC.

Prof. Rolstadås and his wife Kirsten are the parents of a girl (age 16) and a boy (age 11). In his free time, he enjoys taking photographs, especially landscapes. His sabbatical in Seattle has offered him many opportunities to extend his collection. He also enjoys hiking in the mountains as well as cross-country skiing.

COMMUNICATION WITHIN IFIP

Late last year, concern was expressed to **IFIP** president *Mr. Ashley Goldsworthy (AUS)* that efforts were needed to keep **all IFIP** Working Groups (WGs) familiar **with IFIP** and to let them know they are integral parts of **IFIP.** As a result, he requested vice-*president Prof. Asbjørn Rolstadås (N)* to investigate this matter. The latter sent a questionnaire to WG chairmen and presented the results of this survey to the **IFIP** Council at its March meeting in Geneva (see the article on page 1). The report concluded as follows:

> Based on the information received, it is possible to draw the conclusion that the ***IFIP*** *Newsletter* is well known and provides the WG chairmen with relevant information about **IFIP.** Also the leaflet *What Is* ***IFIP?*** is well known. All WG chairmen seem to know **IFIP's** goals and purposes sufficiently well. However, the business of the **IFIP** General Assembly (GA) is not well enough communicated to them. They obtain, on the average, good support from their Technical Committee (TC) chairmen. TC meeting attendance is good, and around 50% attendance at WG meetings must be considered satisfactory. The international aspect is considered very important and probably outweighs the perceived disadvantages of insufficient financial support to WGs, expensive publications costs, bureaucracy, and lacking contact with the GA. WG chairmen have realized that they can operate freely, but they appreciate the benefit of **IFIP's** name and international contact network.

Actions

After considering the report, Council decided to

• organize a meeting with WG/TC chairmen and the **IFIP** Executive Board during Congress '89. The agenda will include a message by the President and information about the work of the Technical Assembly (TA) and Activity Management Board (AMB) by their chairmen. Discussion of any WG problems will be encouraged.

• establish a task force in the TA to discuss centralized support for organizing working conferences. The task force will also draft a WG chairman's handbook and "welcome package." Anyone who has suggestions concerning what material should be provided to new **IFIP** participants is urged to communicate these ideas to *Prof. Rolstadås,* the chairman of the task force, or Prof. *Pierre Bobillier (CH),* chairman of the Statutes and Bylaws Committee, or **IFIP** secretary, Mr. *Jacques Fourot* ***(F).***

• establish "TC funds" to give TCs greater control over their budgets. This is described in the article on **IFIP** finances on page 9.

• ask the Publications Committee to continue its investigation of publishers and the conditions required to work with **IFIP.**

• send more **IFIP** minutes and reports to WG chairmen.

One more aspect of communication was discussed at Council — the listing of events in the 6-Year Plan and in the "Calendar of Events" .column of the ***IFIP*** *Newsletter.* From now on, the 6-Year Plan will contain all **IFIP** events submitted to the AMB. The *Newsletter* will list only those **IFIP** events that have been approved by the AMB. In addition, selected, major events of Affiliate Members and sister Federations will appear in both listings. The Conference Officer, Mr. George Glaser *(USA),* urges all TC and WG chairmen to inform him whenever a planned event is cancelled or rescheduled or has its location changed.

IFIP PUBLICATIONS AVAILABLE

New **IFIP** workers should be aware of the availability of the following **IFIP** publications from the **IFIP** Secretariat:

- Information Bulletin
- Statutes and Bylaws
- Standing Orders
- *What Is* ***IFIP?***
- 6-Year Plan (list of planned **IFIP** events)

FINANCIAL ACTIONS TAKEN BY COUNCIL

Technical Committee Funds Approved

During its March meeting in Geneva (see page 1), IFIP's Council took steps to establish Technical Committee (TC) Funds and increase Member dues. It also reviewed the current financial picture of IFIP and found it somewhat improved.

The following proposal on TC Funds was approved by Council.

> Some IFIP Technical Committees are generating significant "Positive Net Financial Contributions" (PNFC) * from their activities. [These are now reported as an appendix to the annual Treasurer's report.] At present, these are turned over to IFIP in their entirety. Basically, these funds are used to cross-subsidize key activities of other TCs and IFIP bodies which are sponsoring worthwhile activities but which cannot fund those activities without financial assistance from IFIP. In the same way, TCs that are financially successful in their activities should be able to retain control of some of their PNFC to cross-subsidize some of their own activities.
>
> To implement this, a mechanism should be created in the IFIP budget to identify 25% of the PNFC generated by TCn as the "TCn Fund," under control of the TC generating the PNFC.
>
> These funds may be used by the TC to initiate new activities, fund travel of speakers to TC-sponsored activities, etc. The TC shall have the widest latitude in use of the funds; however, their use shall be under general guidelines to be established by the Technical Assembly (TA). They may be separately augmented by each TC. These guidelines shall be reviewed by the TA initially, and at each TC review.
>
> In the event of a deficit at a TCn activity, 50% of the deficit shall be covered from the TCn Fund.
>
> These funds shall be disbursed on the basis of written authorization signed by the TC chairman and the IFIP treasurer.
>
> This procedure should be based on 1989 performance of TCs and put into effect with the 1990 budget.

Debate on TC Funds

A lively debate preceded passage of this motion. Some TC chairmen noted the small amounts that had been allocated to the TCs in the 1989 IFIP budget. It was observed that the maximum grant permitted for an IFIP event is insignificant compared to the budgets of some events, although large events may receive large loans. On the basis of these arguments and the ones given in the proposal itself, Council approved the concept of TC Funds.

The amounts designated for the Funds will, of course, still reside in the IFIP treasury and belong to IFIP. TC Funds may be accumulated from year to year. When money is needed to support a TC event, it is expected that the TC will first use money in its fund before requesting a loan or grant from IFIP. Thus, fewer TC events will require loan or grant approval by the Activity Management Board. The budgeting process will be unchanged; however, sums will be earmarked as coming from the TC Funds component of the general treasury. No provision exists for negative funds; i.e., TCs that do not generate surpluses, either through fees or royalties, will have nothing in their TC Funds.

News from the Treasurer

IFIP treasurer *Dr. Peter* Kovács (H) reported that the provisional accounts for 1988 show a final net income of 22 000 Sfr, after amounts have been set aside for the Contingency Fund and the Development Fund. IFIP's total fund balance is approximately 900 000 Sfr. A great deal of tire favorable picture is due to 65 000 Sfr. achieved in currency exchange gains on securities and bank account transactions (just as 1987's unfavorable picture was due to such exchange losses and security losses). It is still necessary to trim expenses and work for surpluses; thus, the 1989 budget remains very spare. New accounting procedures were instituted, so that the balance sheet and accounts might more closely reflect IFIP's true financial status. The overall results were not changed significantly by this accounting modification.

Prof. *Alex Verrijn Stuart (NL),* chairman of the Finance Committee (FC), reported its recommendations for putting IFIP on a sound financial footing. The section of the report concerning dues includes the following statements:

> The imbalance of IFIP's expenses and revenue is caused by a relatively high commitment to essential services. Revenue from technical activity should roughly cover all expenses associated with such activities (and, ideally, new initiatives as well). The current situation is that technical activities have to fund some of the "support" (or "non-technical" = NT) activity as well. It is proposed that IFIP firmly adopt the philosophy that NT expenses and revenue roughly ought to balance.
>
> In terms of the 1988 (approved) and 1989 budgets, this means:

(all figures are in thousands of Swiss francs)

	1988	1989
Dues from Members	221	243
Interest on funds	35	60
NT-revenue	256	303
Officers	15	18
Administrative Secretariat	324	345
Standing/Ad-hoc Committees	42	42
NT-expenses	381	405
Shortfall	125	102

(Expressed as percentages of the Member dues, the shortfalls are 57% and 42%, respectively.)

Dues Increase Proposed

> The FC proposes that the level of IFIP Membership dues be raised in three annual steps of approximately 5% each.
>
> In addition to these adjustments, there is the additional responsibility of considering the equitability of the dues for individual cases. Here, the guideline in the past has been to compare national societies on the basis of the official United Nations "scale of assessments." It is the *intention* of the FC to approach those societies where a reclassification might have to be considered.

During discussion of this report, it was pointed out that part of the expenses indicated as NT actually supports technical activity. Council approved the FC recommendation on dues increases, which will be submitted to the General Assembly in September.

* TC's Positive Net Financial Contribution (PNFC) = royalties + event surp:uses - operating expenses - grants disbursed and loans converted

National Abbreviations Used in Newsletter

A	Austria	F	France	NL	The Netherlands
AUS	Australia	GB	United Kingdom	P	Portugal
BG	Bulgaria	H	Hungary	SEARCC	South East Asia Regional Computer Confederation
CDN	Canada	I	Italy	SU	U.S.S.R.
CH	Switzerland	IND	India	USA	U.S.A.
D	Fed. Rep. of Germany	IRL	Ireland	ZA	South Africa
DK	Denmark	J	Japan		
E	Spain	N	Norway		

ANDREI P. ERSHOV 1931-1988

Academician Andrei Petrovich Ershov, an outstanding Soviet scientist, died on 8 December 1988. He was one of the U.S.S.R.'s early pioneers in the field of theoretical and systems programming and a founder of the Siberian School of Computer Science. His significant contributions in forming informatics as a new branch of science are widely recognized in the U.S.S.R.

A.P. Ershov's research on program schematology and the theory of compilation was fundamental and inspired a large number of his students and successors. His book *A Programming Programme for the BESM Computer* was one of the first monographs on automatic programming in the world. He was awarded the A.N. Krylov Prize for major contributions in the theory of mixed computation; it was the first time that a programmer received the most prestigious mathematical prize of the U.S.S.R. Academy of Sciences. In 1974 A.P. Ershov was nominated as a Distinguished Fellow of the British Computer Society.

Andrei P. Ershov was with the Siberian Division of the U.S.S.R. Academy of Sciences since 1959. He played an active role in founding the Novosibirsk Computer Center. In the 60s, his popular lectures greatly affected the formation of programming as a profession.

Due to the breadth of his vision, A.P. Ershov was one of the first men in the U.S.S.R. to recognize the key role of computerization in the progress of both science and society. He provided a plethora of valuable and influential ideas which became a basis of research in automation, parallel programming and artificial intelligence in our country.

More then 20 years ago, A.P. Ershov began to experiment with teaching programming in secondary schools. These attempts evolved into the concept of computer literacy and resulted in establishing the course on informatics and computing machinery in the Soviet schools.

A.P. Ershov was not only an extremely gifted scientist, teacher, and fighter for his ideas, but also a bright and many-sided personality. He wrote poetry and translated the works of Rudyard Kipling and other English poets. He enjoyed playing the guitar and singing. He possessed the rare gift of caring about others.

Everybody who had the pleasure of knowing and working with Professor A.P. Ershov will always remember his great vision, eminent achievements and generous friendship.

Prof. Vadim E. Kotov (SU)
Deputy Director of the Computing Center of the Siberian Div. of the U.S.S.R. Acad. of Sciences

Andrei joined **IFIP's** Technical Committee on Programming (TC2) and the Working Group on Algol (WG2.1) not long after their founding in 1961/62. He remained a member of TC2 until his death. He was a member of the International Program Committee of **IFIP** Congress 68 and vice-chairman of the IPC for Congress 80. He presented many papers at **IFIP** conferences and Congresses. In 1980 he received the Silver Core Award for services rendered to **IFIP.**

If you want to meet Andrei, read his paper "On the Essence of Compilation" in *Formal Definition of Programming Concepts* **(ed.** Neuhold, North-Holland, 1978, pp. 391-420), including the discussion. It reflects his clear mind, his working style and his reactions to questions, at its best.

Prof Dr. Heinz Zemanek (A)
Honorary Member and former president of **IFIP**

A.P. Ershov was a truly great scientist, with deep concern for his science and his fellow scientists in the field, with deep convictions about where it should go, and with the finest of all qualifications to carry out that programme.

Prof. Dines Werner (DK)
International Program Committee chairman of **IFIP** Congress 86 and co-editor with Acad. Ershov of *Partial Evaluation and Mixed Computation* (for more information about this, see the article on page 3 of the September 1988 ***IFIP** Newsletter)*

NEWS OF TC9

*by Drs. Felix van Rijn (NL) **

On January 14 and 15, IFIP's Working Group on Social Accountability (WG9.2) held its semi-annual meeting. Besides the normal administrative matters, there were three main topics:

The reader on *Social Accountability of Computing and Telecommunication: Landscapes for an Information Society* is expected to be published in September.

After careful deliberation and preparation, it was decided to announce the **IFIP** WG9.2 Namur Award for outstanding contributions to the awareness of social implications of information technology. Details will be given in the September ***IFIP** Newsletter.*

In the process of arriving at the next set of thrusts for WG9.2, a teach-in was held during the meeting.

WG9.3 (Home-Oriented Informatics and Telematics—HOIT) met in Bremen, Federal Republic of Germany February 16 and 17. Five research reports were presented and discussed:

Kresten *Bjerg* (DK) described the Home of the 90's project by the Psychological Laboratory of the University of Copenhagen.

Jan Fokkema (NL) presented the preliminary results of a research project on Electronic Homes. He concluded with the main prerequisites for useful electronic home systems: they should be autonomous, incrementally and modularly extendable and simple to use.

Herbert Kubicek (D) gave an overview of the research, which will start before long, on "Standardisation of Large Information Systems in POS Banking and Retail Banking."

Kurt Monse ***(D)*** outlined a research programme on the applications of information and communication technologies by private households in their process of economic exchange.

Gerrit Noltes (NL) paid attention to the way in which objectives of Dutch government policy, especially in the field of public health and welfare, can contribute to the application of certain forms of home automation.

Summaries of the presentations are collected in an internal WG9.3 working document.

" chairman of WG9.3, and **IFIP** Newsletter correspondent

NEW IFIP PUBLICATIONS FROM NORTH-HOLLAND

40% Discount available to members of IFIP Member Societies

Database Security, II

Status and Prospects

Results of the IFIP WG11.3 Workshop, Kingston, Ontario, Canada, October 1988

edited by **C.E. Landwehr**

1989 viii + 282 pages
Price: US $73.75/Dfl. 140.00
ISBN 0-444-87483-6

This second volume reports new research and development results in the area of database security. Topics discussed include the development of a proper framework for stating database system security requirements, and particularly how the notion of *roles* can best be applied.
The application of object-oriented database systems to enforce security requirements stated in terms of role authorizations appears to be a promising avenue for further work.
Characterization and control of the problems of aggregation and inference have also been the subject of considerable effort and some progress.

Contents: Object-Oriented Data Management Systems. Distributed DBMSs and Tools. MLS Database Design and Implementation. Inference and Aggregation.

Integrated Network Management, I

Proceedings of the IFIP TC6 WG6.6 Symposium, Boston, MA, USA, May 1989

edited by **B. Meandzija** *and* **J. Westcott**

1989 xviii + 666 pages
Price: US $102.75/Dfl. 195.00
ISBN 0-444-87398-8

The theme of the symposium was "Improving global communications through integrated network management".
The 53 contributions to this book address management policy, administration and operation of local and wide area communications networks, including data, voice, and integrated communications. The contributors include network vendors, system integrators, researchers, users and participants in standards organizations.

Contents: Heterogeneous Network Management. Integration Through Standards. Management Information and Functions. Design and Modelling. Management Architecture. Distributed Systems Management. Artificial Intelligence in Network Management.

SEE OVERLEAF FOR CONDITIONS AND ORDER INFORMATION

Design Methodologies for VLSI and Computer Architecture

Proceedings of the IFIP TC10 Working Conference, Pisa, Italy, September 1988

edited by **D.A. Edwards**

1989 xiv + 348 pages
Price: US $92.00/Dfl. 175.00
ISBN 0-444-87428-3

Distributed Parameter Systems Modelling and Simulation

Proceedings of the IMACS/IFAC International Symposium, Hiroshima, Japan, October 1987

edited by **T. Futagami, S.G. Tzafestas** *and* **Y. Sunahara**

1989 xvi + 610 pages
Price: US $131.50/Dfl. 250.00
ISBN 0-444-87278-7

Software for Manufacturing

Proceedings of the Seventh International IFIP/IFAC Conference on Software for Computer Integrated Manufacturing (PROLAMAT '88), Dresden, **GDR,** June 1988

edited by **D. Kochan** *and* **G.J. Oiling**

1989 xiv + 612 pages
Price: US $118.50/Dfl. 225.00
ISBN 0-444-87342-2

Applications of Computers to Engineering Design, Manufacturing and Management

Proceedings of the IFIP TC5 Conference on CAD/CAM Technology Transfer, Mexico City, Mexico, August 1988

edited by **G.L. Lastra, J.L. Encarnação** *and* **A.A.G. Requicha**

1989 x + 338 pages
Price: US $84.25/Dfl. 160.00
ISBN 0-444-87314-7

Computer Applications in the Automation of Shipyard Operation and Ship Design, VI

Proceedings of the IFIP WG5.6 Sixth International Conference, Shanghai, People's Republic of China, September 1988

edited by **D. Lin, Z. Wang** *and* **C. Kuo**

(Computer Applications in Shipping and Shipbuilding, 13)

1989 xx + 342 pages
Price: US $97.25/Dfl. 185.00
ISBN 0-444-87343-0

Computerized Natural Medical Language Processing for Knowledge Representation

Proceedings of the IFIP-IMIA WG6 International Working Conference, Geneva, Switzerland, September 1988

edited by **J.R. Scherrer, R. Cote** *and* **S.H. Mandil**

1989 xvi + 296 pages
Price: US $84.25/Dfl. 160.00
ISBN 0-444-87356-2

Intelligent CAD, I

Proceedings of the IFIP TC5 WG5.2 Workshop, Boston, MA, USA, October 1987

edited by **H. Yoshikawa** *and* **D. Gossard**

1989 About 260 pages
Price: US $68.50/Dfl. 130.00
SBN 0-444-87474-7

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KNOWLEDGE-BASED PRODUCTION MANAGEMENT SYSTEMS

*by Dr. Jim Browne (IRL) **

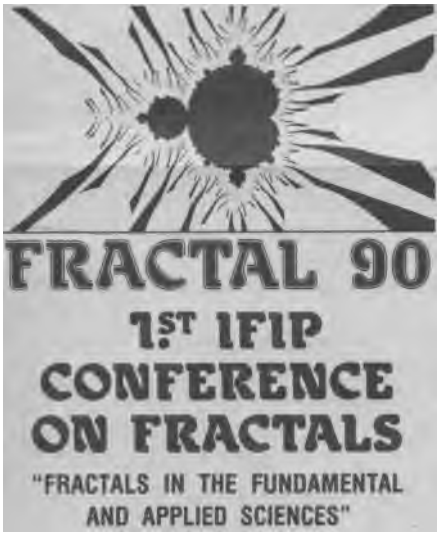
IFIP's Working Group on Computer-Aided Production Management Systems organized a Working Conference on Knowledge-Based Production Management Systems, which was held in Galway August 23rd to 25th 1988. The Conference was preceded by a seminar on the work of the Computer Integrated Manufacturing Research Unit at University College Galway and followed by an industrial visit.

The Conference was attended by 80 people from 20 countries. Of these, 24 were from industrial companies and the remainder were from universities and research laboratories. Over the two and one-half days of the Conference, 23 papers were presented, covering topics in the areas of simulation, model-based approaches, scheduling, production planning and flexible manufacturing systems application.

The papers led to some very interesting and lively discussions, and the Conference concluded with a two hour open forum on the issue of the future of Artificial Intelligence and Production Management Systems (PMS). The important conclusions of this session were, firstly, that lessons should be learned from the Operations Research experience with PMS, namely that advanced techniques should not be used simply as 'solutions in search of problems,' and, secondly, that there is an urgent need for a theory and an agreed architecture of PMS.

The Conference chairman was ***Dr. Jim Browne* (IRL),** who will also edit the Conference proceedings. ■

• member of WG5.7



IFIP's Task Group on Fractals announces the first IFIP Conference on Fractals, to be held 6-8 June 1990 in Lisbon. The program will include tutorials, contributed papers, and panels.

The fractal is a mathematical concept that was developed in the early 1970s to describe objects with self-similar structures at all levels and characterized by fractional dimensions. The field of fractals is now the subject of extensive research, and its application to virtually all areas of science has been explosive. In 1988, IFIP formed a Task Group to work in this growing area of interest. (See page 9 of the June 1988 ***IFIP Newsletter.)*** FRACTAL 90 is the first event sponsored by the Task Group. From 200 to 400 participants are expected.

In addition to the regular program, there will be tutorials 4-5 June by prominent specialists, at advanced and intermediate levels. Participants will have access to computer facilities.

The International Program Committee chairman of the conference is Prof. *Heinz-Otto Peitgen (D). Mr. Luis* Penedo (P), **IFIP** trustee and representative of Portugal in the General Assembly, is chairman of the Organizing Committee. The Honorary Chairman of the Conference is Dr. Benoit *Mandelbrot (USA).*

Papers dealing with the application of fractals in the fundamental and applied sciences are solicited. Suggested areas include mathematics, physics, computer science, biology, geology, philosophy, social sciences, and the arts (visual and music). The deadline is 1 October. For further information, please write

FRACTAL 90
Associacao Portuguesa de Informatica
Av. Almirante Reis, 127, 1
1100 Lisbon, Portugal ■

To Organizers of IFIP Conferences:
Please send several copies of your Calls for Papers to the **IFIP** Secretariat, in order that the staff may be able to handle queries.

FORMAL METHODS FOR VLSI DESIGN

Applied Formal Methods for Correct VLSI Design is the title of a workshop to be held by **IFIP's** Working Groups on System Description and Design Tools (WG10.2) and Very Large Scale Integration (WG10.5). It will take place in Leuven, Belgium 13-16 November 1989. This is the fifth in a series organized by WG10.2 on related areas of correct hardware design and verification.

Functional and behavioral verification of correctness is the bottleneck of current VLSI design systems. Current VLSI validation is done mainly through extensive simulation. The emerging alternative is based on formal design and verification methods that guarantee correctness.

The aim of this Workshop is to bring together all researchers, from both academia and industry, interested in formal hardware design methods that are applicable to correct VLSI design. Tutorials, extended in-depth overviews and demonstrations of CAD tools making use of formal methods will be organized, as well as regular presentations of current research work. In addition, practical demonstrations will permit more detailed informal contacts and discussions.

For further information with regard to submitting a paper or any other aspect of the Workshop, please see the Call for Papers column on page 14. ■

FOUR NEW TC CHAIRMEN

During the past year, four new Technical Committee chairmen have taken office: TC2: *Mr.* Peter *Poole (AUS),* TC5: Mr. Marco *Tomljanovich* (I), TC7: Prof. Palle Tho *ft-Christensen (DK),* and TC11: *Dr. William Caelli (A* US). We welcome these new faces at **IFIP** Council and General Assembly meetings (although they have all been active previously in **IFIP).**

The TC chairmen are among the most important people in **IFIP;** without the work of the TCs, **IFIP** would have little to show for its existence. It has been suggested to the ***IFIP Newsletter*** editor that it would be valuable for the **IFIP** community to know the TC chairmen better. Therefore, in the future, we shall publish biographies of the TC chairmen, in addition to those of other **IFIP** officers. Eventually, we hope to print biographies of all these key people. ■

CALLS FOR PAPERS

4th TC9 World Conf. on Human Choice and Computers (HCC4) — Information Technology Assessment
9-12 Jul 90, Dublin
abstracts due: Jun 89
contact: The Chairperson
HCC4 Programme Committee
Dept. of Comp. Science, The O'Reilly Inst.
Trinity College
Dublin 2, Ireland
tel. +353 1 772941, ext. 1048
fax. +353 1 772204

4th WG10.2 Intl. Workshop on High-Level Synthesis
15-18 Oct 89, Kennebunkport, Maine
extended summary due: 16 Jun 89
contact: HLSW-request@cs.wisc.edu

WG10.2 and 10.5 Workshop on Applied Formal Methods for Correct VLSI Design
13-16 Nov 89, Leuven, Belgium
papers due: 1 Jul 89
contact: Dr. Luc Claesen
IMEC vzw
Kapeldreef 75
B-3030 Leuven, Belgium
tel. +32-16-281203, fax: +32-16-229400
email: claesen@imec.uucp

WG2.2 and 2.3 Working Conf. on Programming Concepts and Methods
2-5 Apr 90, Sea of Gallilee, Israel
papers due: 10 Sep 89
contact: Prof. Dr. Manfred Broy
Fakultät fur Mathematik and Informatik
Universität Passau, Postfach 2540
D-8390 Passau, West Germany

TC6, ICCC, et al. COMNET '90
8-10 May 90, Budapest
papers due: 1 Oct 89
contact: COMNET '90 Conf. Secretariat
P.O. Box 240
H-1368 Budapest, Hungary
tel. (36-1) 329-349 or 329-390
telex: 22-5359, fax: (36-1) 354-317

IFIP Task Group on Fractals 1st Conf. on Fractals **in the Fundamental and Applied Sciences — FRACTAL 90**
6-8 Jun 90, Lisbon
papers due: 1 Oct 89
contact: FRACTAL 90
Associacao Portuguesa de Informatica
Av. Almirante Reis, 127, 1
1100 Lisbon, Portugal
tel. +351-1-535587
telex: +351-1-64653 APINF P

5th TC3 World Conf. on Computer Education **(WCCE/90)**
9-13 Jul 90, Sydney, Australia
papers **due: 1** Oct 89
contact: WCCE/90
PO Box 319
Darlinghurst, NSW 2010, Australia
tel. (+612) 211-5855
fax (+612) 281-1208

CHANGES IN IFIP

The new *IFIP Information Bulletin* has just been printed and mailed to **IFIP** workers. Recent changes to that information will be published in the next ***IFIP*** *Newsletter.*

FUTURE IFIP MEETINGS

GENERAL ASSEMBLY AND COUNCIL (and related meetings)

GA		1-5 Sep 89 (Friday-Tuesday)	San Francisco
1 Sep	all day	Marketing Committee, Publications Committee	
	a.m.	Executive Board, TC chairmen with PC	
	p.m.	Finance Committee, TC chairmen with MC	
2 Sep	all day	Technical Assembly	
	a.m.	Developing Countries Support Committee	
	p.m.	Activity Management Board	
3 Sep	a.m.	Council, followed by GA	
	p.m.	GA	
4-5 Sep	all day	GA	
Council		5-9 Mar 90	Jerusalem or Tel Aviv
GA		3-7 Sep 90	Buenos Aires

TECHNICAL COMMITTEE AND WORKING GROUP MEETINGS*

TC2	2-10 Apr 90	Sea of Galilee, Israel
WG2.1	21-26 Aug 89	Palo Alto
	Jan 91 (tentative)	Europe
	Jun 90	Manchester, U.K.
WG2.2	2-10 Apr 90	Sea of Galilee, Israel
WG2.3	19-25 Jun 89	Poland
WG2.4	Sep 89	Poland
	May 90	Canada
WG2.5	next meeting	Beijing
WG2.7	21-25 Aug 89	Napa Valley, California
	first quarter 90	Brussels
WG2.8	Jul 89	Glasgow
TC3	25-27 Jun 89	Reykjavik
WG3.4	30 Jul 89	Helsinki
TC5	1 Oct 89	Tokyo
WG5.3	8 Nov 89	Arizona
WG5.4	90	Munich
	(in conjunction with meeting of all TC5 WG chairmen)	
WG5.10	Jul 89	Lowell, Massachusetts
TC6	24-25 Aug 89	Lake Tahoe, California
	May 90	Budapest
	Sep 90	Spain
WG6.4	24-25 Aug 89	Lake Tahoe, California
	first week of May 90	Budapest
TC7	3-7 Jul 89	Leipzig, G.D.R.
TC8	end of Aug 89	San Francisco
WG8.1	5-7 Jun 89	Lisbon
WG8.4	Aug 89 (during Congress '89)	San Francisco
TC9	15-16 Jul 89	Hamburg
TC11	21-25 Aug 89	Vancouver

* Some meetings are scheduled in conjunction with Working Conferences, for which the conference dates are listed.

Will TC and WG chairmen kindly keep the Secretariat advised of the dates and locations of their future administrative meetings and also send a copy of the minutes to the Secretariat.

IFIP'S MISSION cont. from page 5

7. To provide a vehicle for work on the international aspects of IT development and application, including the necessary preparatory work for the generation of international standards.

• 8. To provide the means whereby a critical mass of expertise can be applied to advancing the state of the art.

9. To provide appropriate means for the dissemination of information between members of **IFIP** and from **IFIP** to relevant parts of the external world.

10.To contribute to the formulation of the education and training needed by **IT** practitioners, users and the public at large.

All ***IFIP*** *Newsletter* readers are encouraged to study this draft Mission and to send Mr. Morris their suggestions for improvement. One may write

Mr. Graham Morris
International Computers Limited
ICL House
Putney
London SW15 1SW, United Kingdom

The Mission, as further amended, will be presented to the 1989 GA in San Francisco in September for further improvement and for adoption.

CALENDAR OF EVENTS

(continued from page 16)

Event	Date	Location	Organized by
COMNET '90 — Forward into the 2nd Quarter-Century in Networking	8-10 May 90	Budapest	TC6 J. v.Neumann Society
Sixth Intl. Conf. on *Computer Security — IFIPSEC '90*	23-25 May 90	Helsinki	TC II FIPA
Tenth Intl. Conf. on *Pattern Recognition*	3-7 Jun 90	Atlantic City	IAPR
Work. Conf. on *Human Factors in Information Systems Analysis and Design — WHISAD '90*	5-7 Jun 90	Schaerding, Austria	TC8 WG8.1
First Work. Conf. on *Fractals in the Fundamental and Applied Sciences — FRACTAL '90*	6-8 Jun 90	Lisbon	Task Group on Fractals
Work. Conf. on *Environments to Support Decision Processes*	18-22 Jun 90	Budapest	TC8 WG8.3
Work. Conf. on *Man in Flexible Automated Production*	19-21 Jun 90	Prague	TC5 WG5.3
Twelfth *IFORS Conference*	25-29 Jun 90	Athens	IFORS
Tenth Work. Conf. on *Protocol Specification, Testing and Verification*	Jun 90	Ottawa, Canada	TC6 WG6.1
Eighteenth Workshop on *Reliable Computing and Fault Tolerance*	Jun 90	Newcastle	TC10 WG10.4
Second Intl. Conf. on *Economics and Artificial Intelligence*	22 Jul 90	Paris	AFCET **IFIP**
Open Conf. on *Information Technology Assessment — HCC4*	9-12 Jul 90	Dublin	TC9 CEC (FAST pgm.)/ICS
Fifth World Conf. on *Computers in Education — WCCE '90*	9-13 Jul 90	Sydney	TC3 ACS
Intl. Conf. on *Advanced Research on Computers in Education*	18-20 Jul 90	Tokyo	TC3
Eleventh *IFAC World Congress: Automatic Control in the Service of Mankind*	13-17 Aug 90	Tallinn, U.S.S.R.	IFAC
Intl. Conf. on *Advances in Production Management Systems — APMS '90*	20-22 Aug 90	Helsinki	TC5 WG5.7
Intl. Conf. on *Harmonization of Technology with Society — INFO JAPAN '90*	1-5 Oct 90	Tokyo	IPSJ **IFIP** IPSC IEEE/ACM
Purdue Intl. Workshop on *Industrial Computer Systems*	8-11 Oct 90	West Lafayette, Indiana	Purdue TC5 WG5.4
First Work. Conf. on *History of Computing in Europe*	Oct 90	Budapest	**IFIP** Hist. Comm. J. v N. Soc.
Work. Conf. on *Formal Product Information*	Oct 90	Amsterdam	TC5 WG5.2/3/4/7/8
ICCC '90	5-9 Nov 90	New Delhi	ICCC
Work. Conf. on *Information Systems Research Methodologies*	19-20 Dec 90	Copenhagen	TC8 WG8.2
Work. Conf. on *Women, Work and Computerization*	90	Scandinavian country	TC9 WG9.1
Purdue Intl. Workshop on *Industrial Computer Systems*	15-18 Apr 91	West Lafayette, Indiana	Purdue TC5 WG5.4
Intl. Symp. on *Computer Hardware Description Languages and Their Applications — CHDL '91*	Apr 91	Europe	TC10 WG10.2
Seventh Intl. Conf. on *Computer Security — IFIP/SEC '91*	13-16 May 91	London	TC11
IBERICOM '91	May 91	Spain	TC6 FESI
Work. Conf. on *Impacts of Informatics on the Organization of Education*	Jul–Aug 91	Santa Barbara, California	TC3 WG3.1
Twelfth Intl. Joint Conf. on *Artificial Intelligence — IJCAII '91*	18-23 Aug 91	Sydney	IJCAII
Work. Conf. on *Collaborative Work, Social Communication and Information Systems Theories, Methods, Tools and Impacts*	Aug 91	Finland	TC8 FIPA
VLSI '91	Aug 91	Edinburgh	TC10 WG10.5
Twelfth *IMEKO World Congress*	10-15 Sep 91	Beijing	IMEKO
Work. Conf. on *Pgmg. Environments for High-Level Scientific Problem-Solving*	23-27 Sep 91	Karlsruhe, F.R.G.	TC2 WG2.5
Workshop on *Support Functionality in the Office*	Sep 91	Cambridge, U.K.	TC8 WG8.3 WG8.4
Purdue Intl. Workshop on *Industrial Computer Systems*	21-24 Oct 91	West Lafayette, Indiana	Purdue TC5 WG5.4
Work. Conf. on *Process Planning for Complex Machining with AI Methods*	autumn 91/92	Dresden, G.D.R.	TC5 WG5.3
Fourth Intl. Conf. on *Computer Applications in Production and Engineering — CAPE '91*	91	Bordeaux	TC5
Workshop on *Intelligent CAD*	91	Israel	TC5 WG5.2
Workshop on *CAD/CAM Interfaces in Mechanical Engineering*	91	Darmstadt, F.R.G.	TC5 WG5.2 WG5.3 WG5.10
Intl. Conf. on *Computers in the Automation of Shipyard Operations and Ship Design — ICCAS '91*	91	Rio de Janiero	TC5 WG5.6
Work. Conf. on *Production Management of Complex One-of-a-Kind Production*	91	Bremen, F.R.G.	TC5 WG5.7
Work. Conf. on *Programming Environments for Concurrent Systems*	91		TC10 WG10.3
Intl. Conf. on *Computing in the 21st Century*	91	London	IEEE **IFIP**
INDC '92	Mar 92	Finland	TC6 SDF SSE DANFIP/DND
Purdue Intl. Workshop on *Industrial Computer Systems*	6-9 Apr 92	West Lafayette, Indiana	Purdue TC5 WG5.4
Eighth Intl. Conf. on *Computer Security — IFIP/SEC '92*	May 92	Singapore	TC 11
Seventh Symp. on *Dynamic Modelling of National Economies*	18-20 Aug 92	Beijing	IFAC IFORS **IFIP** HASA
IFIP Congress '92 — 12th World Computer Congress	**31 Aug–4 Sep 92**	**Madrid**	**IFIP**
	(dates are tentative)		
Seventh World Cong. on *Medical Informatics — MEDINFO '92*	6-11 Sep 92	Geneva	IMIA
ICCC '92	Oct 92	Genoa	ICCC
Workshop on *Geometric Modelling*	92	Budapest	TC5
Eighth Conf. on *Software for Discrete Manufacturing — PROLAMAT*	92	Japan	TC5 WG5.3 IFAC
Thirteenth Intl. Joint Conf. on *Artificial Intelligence — IJCAII '93*	29 Aug-3 Sep 93	Chambery, France	IJCAII
VLSI '93	Aug 93	Grenoble	TC10 WG10.5
Ninth Intl. Conf. on *Computer Security — IFIP/SEC '93*	May 93	Tokyo	TC 11
Twelfth *IFAC World Congress*	93	Sydney	IFAC

Please see page 14 for schedule of **IFIP** administrative meetings.
The **IFIP** Secretariat can furnish details of most of the events listed.

CALENDAR OF EVENTS

Event	Date	Location	Organized by
Work. Conf. on *Desk-top Information Technology in Organizations*	2-4 Jun 89	Ithaca, New York	TC8 WG8.2
Third Workshop on *Wafer Scale Integration*	6-8 Jun 89	Como, Italy	TC10 WG10.5
Ninth Work. Conf. on *Protocol Specification, Testing and Verification*	6-9 Jun 89	Twente, The Netherlands	TC6 WG6.1
Work. Conf. on *Educational Software at the Secondary Education Level*	18-22 Jun 89	Reykjavik, Iceland	TC3 WG3.1
Ninth Intl. Symp. on *Computer Hardware Description Languages and Their Applications - CHDL '89*	19-21 Jun 89	Washington, D.C.	TC10 WG10.2
Work. Conf. on *Computer-Integrated Quality Systems in CIM Systems*	20-23 Jun 89	Beograd, Yugoslavia	TC5 WG5.3
Fifth Symp. on *Control of Distributed Parameter Systems*	26-29 Jun 89	Perpignan, France	IFAC **IFIP** IMACS INRIA
Sixth Symp. on *Dynamic Modelling and Control of National Economies*	27-29 Jun 89	Edinburgh	IFAC IFIP IFORS SEDC
Sixteenth Workshop on *Reliable Computing and Fault Tolerance*	Jun 89	Urbana, Illinois	TC10 WG10.4
Fourteenth Conf. on *System Modelling and Optimization*	3-7 Jul 89	Leipzig, G.D.R.	TC7 IFAC IFAC IFORS
Intl. Symp. on *Information Technology Standardization*	4-7 Jul 89	Braunschweig, F.R.G.	**IFIP** GI
Work. Conf. on *CAD Systems Using A.I. Techniques*	6-7 Jul 89	Tokyo	TC10 WG10.2
Work. Conf. on *Information System, Work and Organization Design*	10-13 Jul 89	East Berlin	TC9 WG9.1 Humboldt Univ.
Work. Conf. on *Opportunities and Risks of A.I. Systems - ORAIS '89*	17-20 Jul 89	Hamburg	TC9 GI
Work. Conf. on *Workstations for Experiments*	27-29 Jul 89	Boston	TC10 WG5.10 Univ. of Lowell
Work. Conf. on *Methodologies for Training Data Processing Professionals and Advanced End Users*	31 Jul-4 Aug 89	Helsinki	TC3 WG3.4
Fifth Intl. Work. Conf. on *Stochastic Programming*	13-18 Aug 89	Ann Arbor, Michigan	TC7 WG7.1
VLSI '89	16-18 Aug 89	Munich	TC10 WG10.5
Third *Pan-Pacific Computer Conference - PPCC '89*	16-19 Aug 89	Beijing	CCF IFIP NSF CIE-CEAS
Eleventh Intl. Joint Conf. on *Artificial Intelligence - IJCAII '89*	20-26 Aug 89	Detroit	IJCAII
Work. Conf. on *Engineering for Human-Computer Interaction*	21-25 Aug 89	Napa Valley, California	TC2 WG2.7
VLDB '89	22-25 Aug 89	Amsterdam	VLDB
Work. Conf. on *Dependable Computing for Critical Applications*	23-25 Aug 89	Santa Barbara, California	TC10 WG10.4 IEEE EWKS
Workshop on *Groupware Technology*	24-25 Aug 89	Palo Alto, California	TC8 WG8.4 ACM/SIGOIS
IFIP Congress **'89 - I I** th World Computer Congress	28 Aug-1 Sep 89	San Francisco	**IFIP AFIPS**
Work. Conf. on *Concepts and Characteristics of Fifth Generation Computers*	Aug 89	9	TC10 WG10.1
Fifteenth Symp. on *Microprocessing and Microprogramming - EUROMICRO '89*	4-8 Sep 89	Cologne, F.R.G.	EUROMICRO
Work. Conf. *Database Security '89*	5-6 Sep 89	Monterey, California	TC11 WG11.5
Intl. Conf. on *Functional Programming Languages and Computer Architecture*	11-13 Sep 89	London	WG2.8 ACMSIGPLN/ARCH
Fourth Conf. on *Man-Machine Systems (MMS'89): Analysis, Design and Evaluation*	12-14 Sep 89	Xian, P.R.C.	IFAC **IFIP** IEA IFORS
Workshop on *Decisional Structures in Automated Manufacturing*	18-21 Sep 89	Genoa	IFAC IFORS **IFIP CIRP**
Symp. on *Control, Computers and Communication in Transportation - CCCT '89*	19-21 Sep 89	Paris	IFAC **IFIP** IFORS AFCET
Sixth Symp. on *Information Control Problems in Manufacturing Technology*	26-29 Sep 89	Madrid	IFAC **IFIP** IFORS IMACS
Conf. on *Computer Arithmetic - Arith 9*	Sep 89	Santa Monica, California	TC2 WG2.5 IEEE
Third Intl. Conf. on *Computer Applications in Production and Engineering - CAPE '89*	2-5 Oct 89	Tokyo	TC5 IPSJ JSPE IFAC
Purdue Intl. Workshop on *Industrial Computer Systems*	9-12 Oct 89	West Lafayette, Indiana	Purdue TC5 WG5.4
Fourth Intl. Workshop on *High-Level Synthesis*	15-18 Oct 89	Kennebunkport, Maine	ACM/SIGDA IEEE/ DATC & CANDE WG10.2
Workshop on *Distributed Databases in Real-Time Control*	16-18 Oct 89	Budapest	IFAC TC5
Sixth World Cong. on *Medical Informatics - MEDINFO '89*	16-20 Oct 89	Beijing	IMIA CMIA
Work. Conf. on *An In-Depth Analysis of Information System Concepts*	18-20 Oct 89	Namur, Belgium	TC8 WG8.1 FRISCO
Workshop on *Real-Time Programming*	20-22 Oct 89	East Berlin	IFAC **IFIP**
Workshop on *Energy Systems, Management and Economics - ESMI '89*	25-27 Oct 89	Tokyo	IFAC **IFIP**
Workshop on *Experience with the Management of Software Projects*	30 Oct-2 Nov 89	West Layfayette, Indiana	IFAC TC5
Pacific Computer/Communication Symposium	Oct 89	Australia	TC6 PCCS
Workshop on *Advances in Geometric Modeling*	8-9 Nov 89	West Berlin	TC5 WG5.2
Work. Conf. on *Modeling and Simulation for Optimization of Manufacturing Systems Design and Application*	8-10 Nov 89	Tempe, Arizona	TC5 WG5.3
Workshop on *Applied Formal Methods for VLSI Design*	13-16 Nov 89	Leuven, Belgium	TC10 WG10.2 WG10.5
Intl. Symp. on *Skill-Based Automated Manufacturing*	15-17 Nov 89	Vienna	IFAC **IFIP** IMACS
SEARCC '89	4-8 Dec 89	Singapore	SEARCC **IFIP**
Workshop on *Safety of Control Computer Systems - SAFECOMP '89*	5-7 Dec 89	Vienna	IFAC
Work. Conf. on *Robotics for Assembly*	Dec 89	Tel Aviv	TC5 WG5.3 Israel CAD/CAM & ME socs.
Workshop on *The Role of GaAs in VLSI*	89	Princeton, New Jersey	TC10 WG10.5
Fifth *Jerusalem Conference on Information Technology - JCIT*	89	Israel	IIPA **IFIP**
Work. Conf. on *Approving Software Products*	15-17 Jan 90	Munich	TC5 WG5.4
Seventeenth Workshop on *Reliable Computing and Fault Tolerance*	Feb 90		TC10 WG10.4
Intl. Conf. on *Modelling the Innovation: Communications, Automation and Information Systems*	21-23 Mar 90	Rome	**IFIP** AEI IEEE IFAC
Third Intl. Conf. on *Information Network and Data Communication*	26-29 Mar 90	Lillehammer, Norway	TC6 DND SDF SSI
Workshop on *Knowledge-Based System Design Tools*	Mar 90	Amsterdam	TC10 WG10.2
Work. Conf. on *Programming Concepts and Methods*	2-5 Apr 90	Sea of Galilee, Israel	TC2 WG2.2 WG2.3
Purdue Intl. Workshop on *Industrial Computer Systems*	23-26 Apr 90	West Lafayette, Indiana	Purdue TC5 WG5.4
Work. Conf. on *Artificial Intelligence in CIM*	Apr 90	Dresden, G.D.R.	TC5 WG5.3 Europ. Assn. AI
Work. Conf. on *Occam and Transputers*	Apr 90	U.S.A.	TC10 WG10.3

(continued on page 15)

IFIP Congress '89-11th World Computer Congress	28 Aug-L.Sep 89	San Francisco	**IFIP**
IFIP Congress '92-12th World Computer Congress	31 Aug-4 Sep 92	Madrid	**IFIP**
	(Congress '92 dates are tentative)		

Please see page 14 for schedule of IFIP administrative meetings.
The IFIP Secretariat can furnish details of most of the events listed.