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URSI AWARDS 1990

On the occasion of each General Assembly, four Awards are presented for outstanding contributions in the field of radio science made during a six-year period preceding the Assembly.

The Balth. van der Pol and J.H. Dellinger Gold Medals are awarded by the URSI Board of Officers to outstanding scientists whose achievements in any of the branches of radio science covered by the Commissions of URSI have been particularly valuable. For the J.H. Dellinger Gold Medal, the work should have been preferably in the field of radio wave propagation.

The Issac Koga Gold Medal is awarded by the URSI Board of Officers to a young scientist, of age not more than 35 years on 30 September of the year preceding the General Assembly, who has made an outstanding contribution to any of the branches of radio science covered by the URSI Commissions.

The Appleton Prize is awarded by the Royal Society of London for outstanding contributions to studies in ionospheric physics.

The laureates of the URSI Awards in 1990 are:

Balth. van der Pol Gold Medal

Prof. A.A. Oliner, for major and outstanding contributions to the theory of guided waves, especially leaky waves, where he analyzed the basic properties, discovered new physical effects, and invented novel radiating structures.

John Howard Dellinger Gold Medal

Dr. G. Swarup, for pioneering contributions to radio astronomy and cosmology, both in observational research and in conceiving and building radio telescopes.

Issac Koga Gold Medal

Dr. M. Lockwood, for highly significant contributions to the understanding of non-thermal ionospheric plasma and ionospheric convection, successfully combining physical intuition and a deep knowledge of theoretical and observational aspects of ionospheric physics.

Appleton Prize

Dr. V. Gurevich, for fundamental contributions to the understanding of the ionosphere as a non-linear medium, in particular in connection with the interaction of high-power radio waves with the ionosphere.

XXIII GENERAL ASSEMBLY OF URSI

PRAGUE, CZECHOSLOVAKIA, 28 August-5 September 1990

The Second Announcement, containing the Provisional Scientific Programme, was published in May 1990 and distributed to all those who had returned the pre-registration form enclosed in the First Announcement to the Czechoslovak Organizing Committee. Copies have also been sent to URSI Member Committees, URSI Officers, Conveners of symposia, etc.

Requests for additional copies should be directed to:

Mrs M. Němečková
URSI-GA
Institute of Radio Engineering and Electronics
Czechoslovak Academy of Sciences
Lumumbova 1
CS-182 51 Praha 8
Czechoslovakia.

Phone: (42) 2 840 609
Telex: (66) 122646 urep c.

URSI GENERAL ASSEMBLIES

At its meeting in Brussels on 10-12 April 1990, the URSI Board of Officers considered the organization of future General Assemblies, and instructed the Secretariat to publish the document reproduced below.

Outline Requirements for the Organization of URSI General Assemblies

PARTICIPATION

750 - 1500 participants
200 - 300 accompanying persons.

VISAS

URSI must have an assurance that there is no restriction on the issue of entry visas to bona fide scientists.

DATES AND DURATION

URSI General Assemblies are normally held between mid-July and mid-September, and last for 10-14 days.

EXPENSES

The host country is responsible for all expenses incurred locally in connection with the organization of the Assembly. At recent Assemblies, Registration Fees of \$160 for participants and \$50 for accompanying persons have been charged by the host Committee.

LOCATION

The Assembly should be held in a location easily accessible from an international airport.

The site for the Assembly should be within 20 minutes travel time (by public transport or special buses) from the hotels where participants will stay.

ROOMS FOR MEETINGS

A large hall seating 1,000-1,500 persons is required for the Opening and Closing Meetings, and for the General Lectures.

A room seating 60-70 persons is required for the URSI Council and for meetings of other large Committees, etc.

In addition, about 3 rooms seating 30 persons are needed for small Committees, Working Groups, etc.

For the Commissions, it is necessary to have 9 rooms seating 150-200 persons with slide projectors, blackboards, etc. and, if possible, 9 small rooms for Commission Officers and Working Groups.

For the URSI Secretariat: one room for the President, one room for the Secretary General, and one room for the Executive Secretary.

There must be adequate open space with seats for participants to meet informally.

REFRESHMENTS

Light refreshments should be available for the morning and afternoon coffee breaks in locations close to the rooms where the Commissions meet.

There should also be a central buffet where participants can have light refreshments, especially at midday for those who do not wish to return to their hotels.

If the time taken to return to the hotels is great, the number of participants wishing to have a mid-day meal on or near the Assembly site will be quite large.

SECRETARIAL FACILITIES

The Local Committee should provide a minimum of 4 typists who can deal with English and French material, including manuscripts in these languages. A room for these persons should be available.

A machine for duplicating documents rapidly (up to 1,000 copies) is required. Spare parts or a spare machine must be easily and quickly available in case of faulty operation or breakdown.

URSI General Assemblies

I	1922	Brussels	XIII	1960	London
II	1927	Washington	XIV	1963	Tokyo
III	1928	Brussels	XV	1966	Munich
IV	1931	Copenhagen	XVI	1969	Ottawa
V	1934	London	XVII	1972	Warsaw
VI	1938	Venice	XVIII	1975	Lima
VII	1946	Paris	XIX	1978	Helsinki
VIII	1948	Stockholm	XX	1981	Washington
IX	1950	Zurich	XXI	1984	Florence
X	1952	Sydney	XXII	1987	Tel Aviv
XI	1954	The Hague	XXIII	1990	Prague
XII	1957	Boulder			

URSI ACCOUNTS

In accordance with the recommendations of the URSI Standing Finance Committee, the practice of publishing the accounts of the Union annually in *URSI Information Bulletin* is being continued.

The Balance Sheet and the Income and Expenditure Accounts of URSI for the year ended 31 December 1989 are reproduced below. The original accounts have been audited by Van Poyer & Cie, Réviseurs d'Entreprises, Brussels, at the end of March 1990.

The assets held in Belgian francs have been converted to US dollars using the UNESCO exchange rate valid at 31 December 1990: \$1 = BF 37.50).

INTERNATIONAL UNION OF RADIO SCIENCE (U.R.S.I.)

BALANCE SHEET : 31 DECEMBER 1989

ASSETS

Dollars

Banque Degroof (restricted)	16.816,69	
Bank of America	59.450,85	
A. Brown Inc.	90,28	
	-----	76.357,82

Belgian Francs

Banque Degroof	12.101,92	
Générale de Banque	1.018,61	
	-----	13.120,53

Investments :

Herrill Lynch	106.108,06	
Philip Morris shares	19.848,40	
Demeter Sicav shares	19.451,52	
Rorento Units	136.832,75	
Herrill Lynch Shares	60.000,00	
Brown Fund	10.000,00	
	-----	352.240,73

Petty Cash and Stamps :

Petty Cash	124,88	
Stamps	652,13	
	-----	777,01

Sundry Debtors

Deposit RTT		234,67
Other debtors		1.140,84

Total Assets		443.871,60

Less creditors

I.U.C.A.F (*)	10.526,05	
I.U.W.D.S (*)	3.269,72	
	-----	13.795,77
Other creditors (*)	6.319,09	
Pension Fund (*)	9.953,15	
Audit Fees	1.333,33	
Salaries, related charges	3.770,08	
Balth van der Pol Medal Fund (*)	12.453,69	
	-----	33.829,34

NET TOTAL OF URSI ASSETS		396.246,49
		=====

INTERNATIONAL UNION OF RADIO SCIENCE (U.R.S.I.)

BALANCE SHEET : 31 DECEMBER 1989

Statement of Income and Expenditure
at 31 December 1989

I. INCOME

Grant from ICSU Fund	11.420,00
Unesco Contracts	994,67
Contributions from Member Committees	155.846,00
Sales of Publications	475,33
Bank Interest and Gain on Exchange	29.817,28
Other income	4.606,32

	203.159,60

II. EXPENDITURE

a. Scientific Activities	50.822,79

General Assembly - Organization	1.095,28
General Assembly - Scientific	15.940,32
Symposia/Colloquia/Working Groups	19.757,59
Representation at scientific meetings	8.029,60
Grants to Organizations	6.000,00

b. Routine Meetings	

Bureau/Executive committee	19.545,38
c. Publications	22.753,49

d. Administrative Expenses	102.013,02

Salaries, Related Charges	80.511,60
General Office Expenses	7.610,67
Office Equipment	320,18
Accounting and Audit Fees	7.278,15
Bank Charges and Loss on Exchange	6.292,42

e. ICSU Dues	2.968,00

	198.102,68

Excess of Income over Expenditure	5.056,92
Accumulated Balance at 1 January 1989	396.732,88

Balance at 31 December 1989	401.789,80
Appreciation of Belgian Franc	(5.543,31)

Accumulated Balance at 31 December 1989	396.246,49
	=====



INTERNATIONAL UNION OF RADIO SCIENCE (U.R.S.I.)

BALANCE SHEET : 31 DECEMBER 1989

Rates of exchange :

1 January 1989 : \$ 1 = 36,10 BF
31 December 1989 : \$ 1 = 37,50 BF

Observation :

The accounts indicated with (*) are constituted by :

- 50 % in US \$,
- 50 % in Shares as indicated below :

- DEMETER SICAV
- PHILIP MORRIS Shares
- RORENTO Shares

Appreciated value of investments on december 31, 1989 :

- DEMETER SICAV :	23.399,20
- PHILIP MORRIS Shares :	24.780,43
- RORENTO Shares :	236.747,09

URSI REGISTER OF NATIONAL STANDARDS LABORATORIES FOR ELECTROMAGNETIC METROLOGY

This handsome volume was published at the beginning of 1990 by Adam Hilger (Bristol and New York), under the auspices of URSI. The editor of the Register, Mr. A.E. Bailey, made a splendid effort collecting and organizing extensive information on National Standards Laboratories. The work covers a topic which belongs to one of URSI's broad areas of activity, viz. "to encourage the adoption of common methods of measurement, "and the intercomparison and standardisation of the measuring "instruments used in scientific work".

The Register has a history. A first draft was published in 1975, under the auspices of URSI's present Commission A (Commission I at the time), and further editions were prepared in 1978, 1984 and 1987. These were produced in photocopy form, in limited numbers, by the UK National Physical Laboratory. The present volume (ISBN0-85274-127-8) is the first one to be produced and distributed by a commercial publisher.

The Register (129 pages long) covers the field of electromagnetic metrology, i.e. measurements of time and frequency, of DC and LF electrical and magnetic quantities, and of radio and microwave frequencies - with extensions, where appropriate, to infrared and optical frequencies. It starts with a description of the role and facilities of the International Bureau of Weights and Measurements (BIPM), with which the International Time Bureau (BIH) is now amalgamated. The main body of the book is devoted to a detailed list of the national standards and calibration facilities available in the various countries. The information has been provided by the URSI Member Committees and the National Laboratories.

NEWS FROM MEMBER COMMITTEES

7th UK NATIONAL RADIO SCIENCE COLLOQUIUM

Eighty participants attended the seventh in the UK's series of National Radio Science Colloquia. The general aim of these Colloquia is to enable all those working on URSI subjects to hear about current work in the United Kingdom on all aspects of radio science. A more particular aim is to encourage young scientists to give papers and to expose them to the varied aspects of radio science so that future generations of URSI activists are assured. This year's Colloquium was held at the Rutherford Appleton Laboratory on 23 and 24 April 1990 under the able Chairmanship of Dr. John Norbury who ensured that a well organised event provided technical stimulation and continuous interest. The sessions covered antennas, metrology, wave theory and time transfer; propagation effects and remote sensing from satellites; HF propagation; radar meteorology, propagation in flames and scattering theory; satellites, coding and EMC; mobile predictions, ducting and interference effects; geophysical aspects; propagation in plasmas and radio astronomy. The formal sessions were backed up by time for informal discussion. A dinner for participants was held in the nearby ancient town of Abingdon.

The Colloquium was very pleased that both the President of URSI, Professor Alec Cullen, and the Secretary General of URSI, Professor Jean Van Bladel, were able to attend and make valuable contributions to its success.

30 April 1990

A.D. OLVER

USNC/URSI AT DALLAS

6-11 May 1990

The 1990 Radio Science meeting organised by the US Member Committee for URSI was held in Dallas, Texas, during the week beginning 6 May. It was arranged, as usual, to coincide in time and place with the IEEE AP-S International Symposium, but on this occasion, it coincided also with the IEEE MTT-S International Microwave Symposium. The organisation of this very large event was carried out most efficiently, with 20-minute time slots for presentations adhered to even in the unexpected absence of a speaker. So moving from one lecture session to another at question-time was usually practicable, and with so many parallel sessions it was certainly desirable.

There were typically 12 parallel sessions throughout for the combined AP-S/URSI programme; whilst this made choice difficult, one can understand that with 850 papers submitted, evenly divided between AP-S and URSI, the alternative of an extremely high rejection rate would have been undesirable. There were few surprises in the topics covered. As usual, scattering problems and antennas dominated the meeting, but advantage was taken of the MTT-S presence to hold a plenary session on the merging of different technologies. The speakers were Dr. Harold Sobol of the University of Texas, Dr. Robert Mailloux of Rome Air Development Center, and Mr. Richard Mathison of Jet Propulsion Laboratory. There were special sessions in honour of Professor L.B. Felsen and Professor Y.T. Lo. The session in honour of Leo Felsen was obviously of particular interest in the URSI context since he has been so powerful a figure in URSI meetings for many years, and has made such a major contribution to electromagnetic theory, especially in analytical techniques for scattering and diffraction problems. His contributions have been recognised specifically by URSI through the award of the Van der Pol Gold Medal. On this occasion I was asked to chair the session jointly with Dr. John Arnold. I was delighted to accept, since Leo and I are old friends, having been regular attenders at URSI General Assemblies since the 1963 Tokyo meeting. There was an added pleasure since John Arnold, who has collaborated with Leo for the last fifteen years or so, graduated from Sheffield University where we briefly overlapped. The session was preceded by a luncheon, after which several speakers paid tribute to

Leo, describing his remarkable life story, his scientific achievements, and above all, his generous help, encouragement and inspiration to his countless students and collaborators. The Special Session itself was divided (by the coffee break) into two parts, the first part including work in the frequency domain, and the second including time-domain studies. The first group of papers was presented by J.M. Arnold, L.W. Pearson, P.H. Pathak, and I.M. Besieris. In the second group, the speakers were E. Heyman, D.G. Dudley, H. Ikuno and E. Heyman again. All are former students of and/or collaborators with Leo Felsen. The session was a particularly attractive one by virtue of the very enjoyable family atmosphere and by the very high quality of the papers presented. (The second paper presented by Heyman had Leo as one of the authors; with Leo in the audience this could have been an unnerving experience!). Don Dudley, speaking on target identification, and explaining how one of Leo's ideas proved so valuable in this work, made the comment that the idea was presumably not particularly directed at target identification. Then turning to Leo, he said "You wouldn't regard yourself as a target identifier would you?" Leo's instant response was "Not really; more of a target than an identifier!" A delightful occasion which gave everybody present such pleasure, and I feel sure that included Leo himself.

There were many other sessions to which I should like to refer, and many other URSI personalities I should like to mention, but to keep this report within reasonable bounds, I shall mention only two highlights, selected, of course, on a purely personal basis. The first of these is another joint AP-S/URSI Special Session: Superconductive material characterisation and applications. The session was to have been chaired by Ken Mei and Fred Tesche, two old friends of mine from a Berkeley sabbatical years ago, but in the event Ken didn't make it. He had the perfect excuse: the imminent arrival of an addition to the Mei household. Interest in superconductors has increased with the arrival of "high temperature" superconductors, having critical temperatures within 20K of the temperatures that can be reached with Freon, and with the recognition of the fact that significant reductions in surface resistance can be achieved even at millimetre wavelengths. Single crystal rather than amorphous specimens of the new materials is the ideal; almost single crystals are found to have surface resistances at millimetric frequencies which depend strongly on the crystal plane in which the measurement plane is cut.

This latter point came out very clearly in a paper from a group of workers at the University of Houston. Another paper from the same University analyses propagation along a superconducting stripline using a high temperature superconductor, and demonstrates the remarkable effect on propagation velocity of the phenomenon of kinetic inductance, resulting from most of the magnetic energy in the line being stored in the form of kinetic energy of the paired electrons. For wide strips, the velocity can be reduced to less than one tenth of the velocity of TEM waves in the surrounding dielectric material. It is shown, however, that the effect is strongly dependent on the width of the strip as well as on its thickness. A later paper in the session from Berkeley confirmed the slow wave phenomenon for a different stripline geometry. One of the authors of this paper was Ken Mei, and the paper used the representation of a superconductor as a negative dielectric, which Ken introduced in his Plenary Session lecture in San José last year. So the new materials are getting better, and new phenomena are being discovered - or in some cases rediscovered. Given these new materials, and these new phenomena, what use can we make of them? Dr. R.C. Hansen, in a valuable presentation, indicated that in his view there were a number of misconceptions about this question. In the first place, he pointed out that improving the radiation efficiency of a short dipole at the expense of a reduced bandwidth may have little practical value. He claimed, however, that where a reduced bandwidth is acceptable, the right place to use the superconducting material would be in the matching circuit rather than in the dipole itself. There were many more interesting results and concepts in the other papers in the session; all I can hope to do here is to give some idea of the flavour of the session.

The other session to which I will briefly refer has an intriguing title - The role of analysis in the age of computers. The session was chaired by Leo Felsen - that formidable advocate of analysis. Bob Collin opened the proceedings with a masterly account of the strength of the case for analysis, and this was followed by an impressive exposition of the power of numerical methods. Raj Mittra followed with a paper with (I think) the longest title in the entire symposium: The role of analytical preprocessing in computational electromagnetics - or - why it may pay a lot to do a little analysis before jumping head-on into heavy computation!. A long title, certainly, but one which contains a lot of good sense. What was pleasing to me was to see the extent to which the two

camps had moved together in their thinking. As numerical methods have become more sophisticated, and as the methods of classical numerical analysis are more widely understood and used, so the use of computers has risen in the esteem of the analytical experts, and I doubt if anyone in the room would have seriously disagreed with the spirit of Raj Mittra's title. The value of the computer as a teaching aid was explored by Magdy Iskander, and a final paper by Ed Miller made an impressive analysis of the value of the computer to the user, and the factors which can enhance that value. A final lively panel discussion - which I would not dare to try to summarize - brought to an end one of the best sessions I attended.

For those with a taste for statistics, the following table has been compiled.

<u>Organiser</u>	<u>Number of Sessions</u>	<u>Number of Papers</u>
URSI/A	4	33
URSI/A,B	1	10
URSI/B	23	216
URSI/E	1	10
Joint AP-S/URSI/B	16	139
Joint AP-S/URSI/A	1	10
MTT-S/AP-S/URSI	1	4

To sum up, the meeting contained much development of well-known concepts and techniques, enlivened by a number of very lively sessions on matters of great topical interest, and the URSI contribution was of first-class quality.

A.L. CULLEN

INTERNATIONAL SYMPOSIUM ON EQUATORIAL AERONOMY
AND
INTERNATIONAL BEACON SATELLITE SYMPOSIUM

Tucuman has been the venue of two important international symposia, during the period 21 to 30 March 1990; the first: the VIII International Symposium on Equatorial Aeronomy (ISEA) from 21 to 27 March, and the second: the International Beacon Satellite Symposium (IBSS) from 27 to 30 March.

INTERNATIONAL SYMPOSIUM ON EQUATORIAL AERONOMY

More than 60 scientists from outside Argentina and 12 from the host country converged in Tucuman to present and discuss a broad variety of subjects bearing directly or indirectly on equatorial aeronomy. Subjects included:

- Measurement techniques in low latitude and equatorial aeronomy
- Mesosphere, stratosphere and troposphere
- E-region electrodynamics and plasma instabilities
- Low latitude current systems
- Neutral atmospheric processes in the low latitude and equatorial F region
- F-region ionosphere and spread F
- Scintillation effects and active experiments (ISEA-IBSS joint sessions).

A total of 72 papers have been presented, 18 of them as invited and 54 as contributed papers, which meant, so far, the ISEA with the most copious scientific contribution. High scientific level has characterized these papers, causing a beneficial discussion that will permit, without doubt, to improve or to modify research courses. The session also permitted young people of the region, including students from the University of Tucumán, to have contacts for the first time with outstanding scientists from around the world and to learn from them how to make good research.

Dr. Bela G. Fejer, of the Centre for Atmospheric and Space

Sciences, Utah State University, Logan, UT (84322-4405), is in charge of the printing of the Proceedings of the Symposium.

INTERNATIONAL BEACON SATELLITE SYMPOSIUM

Twenty scientists from outside Argentina and 12 from the host country participated in this meeting, presenting 5 invited and 39 contributed papers, during the four days of sessions. Besides, many of the ISEA participants prolonged their stay in Tucuman in order to attend the other Symposium. Open discussions on data handling and modelling; receiver techniques and future beacons, summed to the final business session of the Beacon Satellite Group, completed the programme that constituted itself an important scientific forum of profitable discussions on:

- Scintillation observations and modelling
- Total electron content observations and modelling
- Effects of large and small scale irregularities
- Ionospheric storm effects
- New approaches and techniques.

Here, as in the ISEA, mature as well as young investigators, and particularly advanced University students got from high level researchers the knowledge, experience and guidance that will permit them to walk along the right way.

Events like ISEA and IBSS must be specially backed to be held in developing countries. The normally serious economical difficulties of these countries limit the possibilities of people to assist and to share the good science.

Dr. José R. Manzano, Laboratory of the Ionosphere, Institute of Physics, University of Tucuman, av. Independencia 1800 (4000) Tucuman, Argentina, is in charge of the printing of the Proceedings of the Symposium.

ISEA and IBSS could not have been performed without the financial support of the International Centre for Theoretical Physics (Trieste), the International Union of Radio Science, the Air Force Geophysics Laboratory (USA), the International Association of Geomagnetism and Aeronomy, and specially the University of Tucuman, which provided, besides economical help, all the necessary infrastructure.

Dr. José Roberto MANZANO

ANNOUNCEMENTS OF MEETINGS AND SYMPOSIA

URSI COMMISSION F SPECIAL OPEN SYMPOSIUM

REGIONAL FACTORS IN PREDICTING RADIOWAVE ATTENUATION

DUE TO RAIN

Rio de Janeiro, 3-7 December 1990

THEME

During the last decade a number of methods have been produced for prediction of cumulative distribution statistics of attenuation due to rain. For temperate regions, several have been found to give results comparable to those of the current CCIR methods for terrestrial and for Earth-space paths. For the terrestrial paths, the rain parameters are usually the point rainfall rate for the given time percentage and the effective distance over which that rainfall rate may be assumed to apply for a given path length (or the path length reduction factor). For Earth-space paths, an additional factor has been used to give the effective height over which the rainfall rate may be assumed. Due to the serious lack of data on which to develop models until now, the methods have generally assumed the path reduction factor to be valid worldwide, and the effective rain height to be simply a function of latitude.

Now it is understood that a number of measurements in low-latitude regions are about to produce their first results, and it is felt to be an ideal time to have an URSI Open Symposium to present some of these results and discuss their consequences for modelling of attenuation statistics. The objective is to see whether a comparison of measurements made in different regions of the world will point to regional factors to apply to prediction methods to take account of differences in rain characteristics other than rainfall rate alone. By meeting at this time rather than waiting, some experimenters may choose to add to or modify their experiments as a result of discussions in Rio. The reason for the word "special" in the title is that

this is not one in the triennial broad-based Commission F Symposia, such as that held last year in La-Londe-les-Maures, but a very specialised symposium, with workshop sessions as well as presentation of papers.

PROVISIONAL PROGRAMME

The programme sessions are expected to be in the following groups:

1. Presentation sessions on horizontal distribution of rain.
2. Workshop on horizontal structure and consequences for modelling.
3. Presentation sessions on vertical distribution of rain.
4. Workshop on rain height and consequences for modelling.
5. Presentation session on point measurements of rainfall rates.
6. Presentation session on radar techniques.
7. Presentation session on distrometer/raingauge techniques.
8. Workshop session on the way forward.

The meeting is intended to emphasise the radio engineering aspects of the problem rather than the radio science or meteorological aspects.

PROGRAMME ORGANIZING COMMITTEE

The membership of this Committee is as follows: Professor G.O. Ajayi, Dr. J.E. Allnut, Professor M.S. Assis, Professor R.K. Crane, Dr. K.A. Hughes, Professor M.S. Pontes, and Mr. M.P.M. Hall (Chairman).

PUBLICATION OF PAPERS

It is intended that selected symposium authors will be invited to submit their papers for publication in a special issue of *Radio Science*, which will be subject to the usual review procedures.

Requests for information should be directed to:

Mr. M.P.M. Hall
Rutherford Appleton Laboratory
Chilton, Didcot
Oxon OX11 0QX
United Kingdom.
Fax: +44-235-44-5753.

9th COLLOQUIUM ON MICROWAVE COMMUNICATION (MICROCOLL)

The 9th Colloquium on Microwave Communication will be held in Budapest, Hungary, on 14 September 1990. It will be organized as a Workshop together with the European Microwave Conference.

The topics covered by the Colloquium on Microwave Communication are as follows:

<u>Topic</u>	<u>Convenor</u>
1. Microwave semiconductors	Dr. I. Mojzes
2. Microwave remote sensing	Dr. I. Boszóki
3. Multimedia communications	Dr. Gy. Lajtha
4. CAD of telecommunication systems	Dr. I. Frigyes.

In the framework of the Workshop, invited papers from well-known scientists will be presented.

The Chairman of the Colloquium is Professor K. Géher, and the Secretary is Dr. É. Gödör.

Information about the MICROCOLL is available from:

Secretariat of the 9th MICROCOLL
Research Institute for Telecommunication
Gábor Áron u. 65
1026 Budapest, Hungary.

Telephone: (36) 1-1151 197
Fax : (36) 1-135 5560.

INTERNATIONAL SYMPOSIUM ON
ANALOGIES IN OPTICS AND MICRO ELECTRONICS

This International Symposium will be held in Eindhoven (The Netherlands) on 2-3 May 1991. It is being organized by the Technische Universiteit Eindhoven. The Chairman of the Local Organizing Committee is Professor W. Van Haeringen.

Symposium Themes

Schrödinger/Maxwell similarities, localization of light and electrons, Aharonov Bohm oscillations, Berry phases, coherent electron focussing, optical bandstructure, propagation in random systems, properties of mesoscopic systems in general and related subjects.

Objective

The purpose of the Symposium is to give an opportunity to researchers in the field to exchange recent ideas, to inform scientists who wish to orientate themselves quickly in this fascinating and rapidly growing research field on the borderlines between optics and micro-electronics.

Posters

Participants are invited to submit poster presentations that fit within the scope of the conference. A one-page abstract including title, authors and affiliation should be submitted by 15 January 1991, to be sent to Professor Dr. D. Lenstra, Eindhoven University of Technology, Department of Physics, P.O.Box 513, 5600 MB Eindhoven, The Netherlands. The poster contributions will be refereed. Notification of acceptance or non acceptance will be sent before 1 March 1991.

Proceedings

The Proceedings of the Symposium will include full length invited papers as well as a selected number of extended

abstracts of poster contributions. For the latter, authors of accepted posters are invited to submit the text of an extended version (500 words) during the Symposium. The Proceedings will be published by North Holland Elsevier Science Publishers, Amsterdam.

Location

The Symposium will be held in the "Bestuursgebouw van de Technische Universiteit Eindhoven".

Fee

The registration fee will be Dfl.240 for EPS-members and Dfl.275 for non-EPS members, upon registration before 15 February 1991 and Dfl.325 for late registrations. The fee covers a copy of the Proceedings and lunches, coffee and tea on 2 and 3 May.

Accommodation

Accommodation will be available in hotels of different categories. A hotel reservation form will be sent together with the second announcement (early Fall 1990).

Information about the Symposium:

Professor W. Van Haeringen
Physics Department
Eindhoven University of Technology
P.O.Box 513
NL-5600 MB Eindhoven
The Netherlands.

4th INTERNATIONAL SCHOOL FOR SPACE SIMULATION

(ISSS-4)

The 4th School for Space Simulation will be held from 25 to 30 March 1991 at the Kyoto University and from 2 to 6 April 1991 at the Nara Prefecture Public Hall, Japan.

Details concerning the ISSS-4 are given in *URSI News*, June 1990 included in the present issue of the Bulletin.

7th INTERNATIONAL CONFERENCE ON
ANTENNAS AND PROPAGATION (ICAP 91)

ICAP 91 will be held at the University of York, United Kingdom, from 15 to 18 April 1991. The Conference will continue the tradition of past conferences in acting as a major international focus for all aspects of antennas and electromagnetic wave propagation. It enjoys co-sponsorship with URSI, and covers topics falling within URSI Commissions B, F, G and H.

Contributions are welcome on Antennas and Propagation topics over the entire radio spectrum from ELF to EHF as illustrated by the scope shown below.

Scope

Antennas and Related Topics

Multibeam antennas; Antennas for mobile and personal communications; Remote sensing antenna systems; Numerical techniques for electromagnetic problems; Adaptive antennas; Array antennas; Microstrip and conformal antennas; Wideband antennas; Reflectors and lenses; Horns and feeds; Satellite antennas; Millimetrewave antennas; ELF to UHF antennas; Broadcast antennas; Radomes and frequency selective surfaces; Measurement techniques; Mechanical aspects of antennas; Transient response and Time Domain Analysis; Teaching methods; Other.

Propagation and Related Topics

Propagation factors for personal and mobile communications; Urban propagation factors; Propagation factors for mobile satellite services; Remote sensing; Radio and radar meteorology; System planning; Propagation in fixed service satellite systems; Ionospheric propagation; VHF and UHF propagation; Tropospheric propagation; Millimetrewave propagation; Propagation aspects of frequency management; Propagation countermeasures; Propagation simulation; Teaching methods in propagation; Other.

Deadlines for Contributions

Receipt of synopsis	14 July 1990
Notification of acceptance	September 1990

Receipt of full typescript

30 November 1990

Requests for information should be directed to:

Conference Services
The Institute of Electrical Engineers
Savoy Place
London WC2R 0BL
United Kingdom.

Telephone: (44) 1-240 1871 Ext. 222
Telex : 261176 IEE LDN G
Fax : (44) 1-240 7735.

XX INTERNATIONAL CONFERENCE ON PHENOMENA
IN IONIZED GASES

The ICPIG XX will be held in "Il Ciocco", Barga, Italy from 8 to 12 July 1991. It is being organized by the Istituto di Fisica Atomica e Molecolare del Consiglio Nazionale delle Ricerche, Pisa, Italy. The Chairman of the International Scientific Committee is J. Purić (Yugoslavia).

The scientific programme will cover most aspects of phenomena in ionized gases and plasmas with special emphasis on moderate temperature plasmas. Technological applications of devices operating in this plasma regime are of specific interest. The International Scientific Committee, with members from 12 countries world-wide, will select speakers to present general and topical lectures. These lectures will be published as a companion volume some months after the Conference.

The Conference will include the following subject areas:

Kinetics, thermodynamics and transport phenomena; Waves and instabilities, including shock waves; Non-linear phenomena and self-organization processes; Particle and laser beam interaction with plasmas; Ionospheric, magnetospheric and astrophysical plasmas; Physical aspects of plasma chemistry, plasma processing of surfaces and plasma-wall interaction; Non-ideal plasmas; Elementary processes; Ionization growth and transition to breakdown; Low pressure glows; Coronas, sparks,

surface discharges and high pressure glows; Arcs; Electrode and surface effects; Radio frequency, high frequency and microwave discharges; Laser induced and optically controlled discharges; Discharges for generation of laser radiation; Generation and dynamics of plasma flows; Numerical modelling; Plasma spectroscopy (including laser induced fluorescence, optogalvanic and optovoltaic effects); Diagnostic methods.

Contributed papers will be refereed and the final selection will be made by the International Scientific Committee. These will be presented in poster sessions.

The deadline for contributed papers will be 1 February 1991.

Correspondence concerning the Conference should be sent to:

Dr. V. Palleschi ICPIG XX
Istituto di Fisica Atomica e Molecolare
Via del Giardino 7
I - 56127 Pisa, Italy.
Telephone: (39) 50-543 456
Fax : (39) 50-589 048.

6th WORLD TELECOMMUNICATION FORUM

Part 2: TECHNICAL SYMPOSIUM

The World Telecommunication Forum has been held in Geneva, Switzerland, on a quadrennial basis since 1971. The ITU, together with a great number of professional engineering societies from its 166 Member countries, is now organizing the 6th World Telecommunication Forum. The Symposium will be held in Geneva from Thursday, 10 October to Tuesday, 15 October 1991, within the framework of TELECOM 91, the theme of which is "An interconnected world: improving the quality of life for all".

The World Telecommunication Forum, highly technical and scientific yet universal in character, is now recognized as the summit for interchange of ideas in the fast evolving scene of world telecommunications.

The President of the 6th World Telecommunication Forum is Mr. Pekka Tarjanne, Secretary-General of the International Telecommunication Union. The Chairman of the Technical Programme Committee is Mr. Marcel Thué, CNET, France.

The theme of the Technical Symposium is: "Integration, Interoperation and Interconnection: The Way to Global Services". The programme will cover the following areas: Technologies; Networks; Services.

A limited number of contributed papers will be accepted for presentation to the Technical Symposium. These papers must be unpublished and based on original research, developments and approaches carried out in the period between TELECOM 87 and TELECOM 91.

The deadlines for contributions are as follows:

- Receipt of abstracts 15 October 1990
- Notification of acceptance 15 March 1991
- Receipt of complete manuscripts 1 June 1991.

Further information is available from:

FORUM 91 Secretariat
International Telecommunication Union
Place des Nations
CH-1211 Geneva 20
Switzerland.

Telephone: (41) 22-730 5680
Telefax : (41) 22-740 1013
Telex : 421 000 uit ch.

LIST OF URSI OFFICERS AND OFFICERS OF MEMBER
COMMITTEES: AMENDMENTS

Amendments to the List published in No 251 (December 1990)
of *URSI Information Bulletin* are listed below:

Member Committees

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President: Prof. Dr. F.W. Sluijter, Technische Hoogeschool,
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IRAQ

President: Dr. Saad Dawood Sulymaan, Research Centre, Bab
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Telex: 213161 serch ik; Fax: (009641) 5383635.

Secretary: Dr. Tarik Raof Al-Khateeb, Research Centre,
Bab Al-Muadam, P.O.B. 14080, Baghdad, Iraq.
Telex: 213161 serch ik; Fax: (009641)5383635.

Commissions

Commission C on Signals and Systems

Finland: Mr. J. Aurinsalo, State Technical Research Centre,
Telecommunications Laboratory, Otakaari 7, SF-02150
Espoo, Finland.

Commission E on Electromagnetic Noise and Interference

United Kingdom: Dr. L.W. Barclay, Department of Trade and In-
dustry, DRT, Room 515, Waterloo Bridge House, Waterloo
Road, London SE1 8UA, United Kingdom.

Commission H on Waves in Plasmas

German D.R.: Dr. J. Büchner, Zentralinstitut für Astrophysik,
Rosa-Luxemburg-Str. 17a, DDR-1561 Potsdam, GDR.

Change of Address:

SHA, Dr. Zong, Chinese Institute of Electronics, Room 2307,
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