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## XXII GENERAL ASSEMBLY OF URSI PROGRAMME

The XXII General Assembly of URSI will be held in Tel Aviv, Israel, from Saturday 22 August to Friday 4 September 1987. The Scientific Programme of the Assembly will run from Tuesday 25 August to Wednesday 2 September;

The following decisions and recommendations were made during the meetings held in April 1986 in Brussels, Belgium, by the Steering Group for the Coordination of URSI Scientific Programme, the Chairmen of Commissions, the Board of Officers and the President of the Israeli URSI Committee.

### I. SCHEDULE FOR ADMINISTRATIVE MEETINGS

Saturday 22 August		Board of Officers
Sunday 23 August	AM	Coordinating Committee
	PM	Preparatory Meeting of the Council
Monday 24 August		Council
Thursday 3 September	AM	Coordinating Committee
	PM	Council
Friday 4 September		Board of Officers

### II. SCIENTIFIC PROGRAMME

#### General Lectures

- GL1 Future Communication Networks - H. Seguin (France)
- GL2 Optical Signal Processing - J.E. Midwinter (UK)
- GL3 Encounters with Comets - R.Z. Sagdeev (USSR) and  
W.I. Axford (New Zealand)

*N.B.:* (+) = *Contributed papers*  
(++) = *Contributed posters*

Open Symposia

- OS1 Computer-aided design in radio science with  
(+) (++) emphasis on microelectronics  
Convener: J. Hénaff (France)  
(see Call for papers on p. 11)
- OS2 Reconstruction, imaging and inverse scattering  
(+) (++) Convener: D.L. Jaggard (USA)  
(see Call for papers on p.12)
- OS3 Mm-wave techniques in telecommunications, remote  
(+) (++) sensing and radio astronomy  
Convener: J. Baars (FRG)  
(see Call for papers on p.13)

Joint Symposia

- JS1 Precise measurements in radio astronomy  
Conveners: R. Wielebinski (FRG), S. Hahn (Poland)
- JS2 Optical fiber measurements  
Convener: H.G. Unger (FRG)
- JS3 Laser measurements  
Conveners: J.L. Hall (USA), W.R.C. Rowley(UK)
- JS4 Free-field antenna. Gain measurements and  
standards  
Convener: M. Kanda (USA)
- JS5 Microwave metrology  
Convener: A.P. Anderson (UK)
- JS6 Man-made noise measurements - limits, statistics  
Convener: F.L. Stumpers (Netherlands)
- JS7 Antennas in plasmas (see p.  
(++) Conveners: L.R.O. Storey (USA), R.G. Balmain  
(Canada)

- JS8           Coupling and shielding  
              Convener: E.D. Vance (USA)
- JS9           EM Topology  
              Convener: C.E. Baum (USA)
- JS10          Spectrum management and frequency allocation  
              Convener: R.G. Strużak (Poland)
- JS11          Whistlers and related disturbances  
              Convener: M. Hayakawa (Japan)
- JS12          Communication systems. Performance in natural  
              and man-made noise  
              Convener: A.D. Spaulding (USA)
- JS13-1       ) Radar and radio studies of the middle atmosphere  
JS13-2       ) and the lower ionosphere (see p.14)  
(++)         ) Conveners; S.A. Bowhill (USA), S. Kato (Japan)
- JS14-1       ) Active experiments in space plasmas (see p.14)  
JS14-2       ) Conveners: R.L. Dowden (New Zealand),  
(++)         )                   G. Haerendel (FRG)
- JS15          Plasma instability processes  
              Conveners: S. Ossakow (USA), T. Sato (Japan)
- JS16-1       ) Radio waves in and from planetary and  
JS16-2       ) astrophysical plasmas (see p. 16)  
(++)         ) Conveners: D. Jones (UK), R. Eckers (USA)
- JS17-1       ) Time domain waveform measurements (see p.16)  
JS17-2       ) Conveners: N.S. Nahman (USA), O. Hartal (Israel)  
(++)         )
- JS18          Interaction of electromagnetic waves with  
              biological systems  
              Convener: J.C. Lin (USA)

### Tutorials

- Commission A: Laser measurements 1968-1987 and beyond -  
              W. Woliński (Poland)
- Commission B: Waves and spectra: A modern perspective -  
              L.B. Felsen (USA)
- Commission C: Queuing and coding in multi-user communications:  
              ideas, techniques and theory  
              S. Csibi (Hungary)

- Commission D: Coherent optical fiber communications -  
T. Okoshi (Japan)
- Commission E: Recent research in lightning -  
J. Hamelin (France)
- Commission F: Present and future of research on wave propa-  
gation -  
R.K. Crane (USA)
- Commission G: Some aspects of ionospheric physics relevant  
to ionospheric radio propagation -  
H. Rishbeth (UK)
- Commission H: Present and future trends in research in waves  
in plasmas -  
S.T. Shawhan (USA)
- Commission J: Radio astronomy: new horizons -  
J. Welch (USA)

Scientific Sessions of the Commissions

Commission A - Electromagnetic Metrology

- A1-1 ) Time and frequency  
A1-2 ) Convener: J. Vanier (Canada)
- A2       Recent progress in telecommunication measure-  
          ments  
          Convener: J. Le Mézec (France)
- A3       Microwave to submillimeter measurements and  
          standards  
          Convener: M.W. Sinclair (UK)
- A4       Dielectric measurements  
          Convener: J.R. Birch (UK)
- A5-1 ) Quantum metrology and electronic methods in  
A5-2 ) fundamental constants  
          Convener: V. Kose (FRG)

Commission B - Fields and Waves

- B1       Solution methods in EM theory  
          Conveners: D.C. Chang (USA), I.V. Lindell  
                    (Finland)

- B2 Radiation and scattering. Analytical techniques  
Conveners: S. Ström (Sweden), R.E. Kleinman (USA)
- B3 Transients  
Conveners: K.G. Langenberg (FRG), L.B. Felsen (USA)
- B4 Radiation and scattering. Numerical techniques  
Conveners: B.R. Wilton (USA), P.M. van den Berg  
(Netherlands)
- B5 Numerical methods for inhomogeneous dielectric  
bodies  
Convener: J.W. Strohbehn (USA)
- B6 Planar antennas  
Conveners: N.G. Alexopoulos (USA), J.R. Mosig  
(Switzerland)
- B7 Reflector antennas  
Conveners: W.V.T. Rusch (USA), N.C. Albertsen  
(Denmark)
- B8 Non-linear electromagnetics  
Conveners: A. Scott (USA), J.A. Kong (USA)

Commission C - Signals and Systems

- C1 Digital circuits and digital signal processing  
Convener: A. Fettweis (FRG)
- C2 Digital technologies in radio communication  
systems  
Convener: K. Miyaushi (Japan)
- C3 Multiple user channels  
Convener: not yet designated
- C4 Computer networks  
Convener: T. Rom (Israel)
- C5 Analog sampled data circuits  
Convener: G. Moschytz (Switzerland)
- C6 Distributed parameter (microwave SAW) filters  
Convener: S.C. Dutta Roy (India)
- C7 Constant envelope communications - theory and  
practice  
Convener: I. Bar David (Israel)

- C8 Packet radio communications  
Convener: A. Clamtach (Israel)
- C9 Mobile radio systems  
Convener: P.A. Matthews (UK)
- C10 Coding and cryptography  
Convener: not yet designated
- C11 Performance limits in communication theory and  
practice  
Convener: J. Skwirzynski (UK)

Commission D - Electronic and Optical Devices and Applications

- D1 Electronic materials of the future  
Convener: J. Hénaff (France)
- D2 Quantum well devices and their applications  
Convener: T. Sakaki (Japan)
- D3 Photon counting and optical communication  
Convener: T. Okoshi (Japan)
- D4 Ultra fast electronics  
Conveners: J.W. Klein (FRG), B.G. Bosch (FRG)
- D5 High speed optical detection  
Convener: H. Melchior (Switzerland)
- D6 Non-linear optics and phase conjugation  
Convener: B. Fischer (Israel)
- D7 Optical logic and computing  
Convener: J.E. Midwinter (UK)

Commission E - Electromagnetic Noise and Interference

- E1 Lightning: predischage processes and associated  
radiation  
Convener: D.E. Proctor (South Africa)
- E2 Spacecraft charging and electromagnetic effects  
Convener: J. Taillet (France)
- E3 Lasting effects of transients on equipment  
performance  
Convener: V. Scuka (Sweden)



- E4 Lightning: interaction with aircraft  
Convener: G.A. Dubro (USA)
- E5 Electromagnetic phenomena related to earthquakes  
Convener: T. Yoshino (Japan)
- E6 The composite noise environment  
Convener: G. Hagn (USA)
- E7 Non-linear effects in the field of EMC/EMP  
Convener: H. Kikuchi (Japan)
- E8 Lightning: cloud to ground discharges I and dI/dt  
and radiation  
Convener: J. Hamelin (France)
- E9 Satellite and planetary noise environment  
Convener: E.K. Smith (USA)

Commission F - Wave Propagation and Remote Sensing

- F1 Remote sensing of the atmosphere  
Convener: J. Goldhirsh (USA)
- F2 Radiopropagation effects on interference in  
radiocommunications  
Convener: M.P. H. Hall (UK)
- F3 Clear-air effects on terrestrial radiocommunications  
Convener: A. Webster (Canada)
- F4 Radiopropagation effects in land mobile radio  
systems  
Convener: R.W. Lorenz (FRG)
- F5 Remote sensing of land  
Convener: A. Blomquist (Sweden)
- F6 Remote sensing of ocean  
Convener: A. Guissard (Belgium)
- F7 Submillimeter and optical propagation  
Convener: A. Consortini (Italy)

Commission G - Ionospheric Radio and Propagation

- G1-1 ) Incoherent scatter studies of the ionosphere  
G1-2 ) Conveners: H. Rishbeth (UK), A. Richmond (USA)  
(+) (++) ) (see Call for papers on p. 16)
- G2-1 ) High latitude ionosphere  
G2-2 ) Conveners: T. Jones (UK), A. Wernik (Poland)  
(+) (++) ) (see Call for papers on p. 17)
- G3-1 ) Modelling and mapping of the ionosphere  
G3-2 ) Conveners: P. Bradley (UK), B.M. Reddy (India)  
(+) (++) ) (see Call for papers on p. 17)
- G4-1 ) The low latitude ionosphere and its effects on  
G4-2 ) telecommunications  
(+) (++) ) Convener: S. Radicella (Argentina)  
(see Call for papers on p.18)
- G5        Ionospheric needs for telecommunication develop-  
          ment 2000 - 2010  
          Conveners: J. Aarons (USA), H. Rishbeth (UK)

Commission H - Waves in Plasmas

- H1        Computer analysis of plasma waves  
(++)      Convener: F. Lefeuvre (France)  
(see Call for papers on p.18)
- H2-1     ) Waves in space plasmas  
H2-2     ) Convener: R.L. Dowden (New Zealand)  
(++)     ) (see Call for papers on p.19)
- H3-1     ) Waves induced particle precipitation  
H3-2     ) U. Inan (USA)  
(++)     ) (see Call for papers on p. 19)
- H4-1     ) Computer simulation of man-made and natural  
H4-2     ) phenomena in space  
(++)     ) Conveners: H. Matsumoto (Japan), M.A. Abdalla  
          (USA)  
(see Call for papers on p.20)

Commission J - Radio Astronomy

- J1      Radio astronomy in space  
         Convener: R. Schilizzi (Netherlands)
- J2      VLBI techniques  
         Convener: B. Anderson (UK)
- J3-1 )  
J3-2 )      Reports from observatories  
J3-3 )      Convener: R. Wielebinski (FRG)
- J4      Metre wave antennas (and results)  
         Convener: G. Swarup (India)
- J5      Submm wave observations  
         Convener: H.P. Roeser (FRG)
- J6      Data, signal and image processing  
         Convener: R.H. Frater (Australia).

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### III. TIMETABLE

#### 31 October 1986

- Deadline for submission of contributed papers  
( 2 abstracts: 1 to URSI Secretariat; 1 to Convener)

#### 30 November 1986

- All submitted papers are acknowledged by URSI Secretariat.

#### 15 January 1987

- The Chairmen of Commissions and the Conveners of Open Symposia produce the lists of papers of their sessions and symposia (OS, JS, S).

#### 15 February 1987

- All authors of papers have been notified about the acceptance of their contributions by the Commission Chairmen (S, JS) and the Conveners of Open Symposia (OS) with copies to URSI Secretariat.
- Invited speakers have provided their abstracts to the Conveners with copies to URSI Secretariat.

#### 1 March 1987

- Full texts of General Lectures and Tutorials have been received.

#### 31 March 1987

- Issuing of the 2nd Announcement of the Assembly.
- All abstracts have reached the Local Organizing Committee.

IV. CALLS FOR PAPERS

N. B.: (+) = *Contributed papers*  
(++) = *Contributed posters*

CALL FOR PAPERS

(+) (++)

OPEN SYMPOSIUM (OS1)

Computer-Aided Design in Radio Science with emphasis  
on Microelectronics

Progress in computer technology has brought forth a dramatic change in the design technologies in various areas of radio science, such as the design of communication systems, radio equipments such as antennas, receivers and transmitters, radio components such as microwave waveguide components, and various electronic circuits and electron devices. Particularly noteworthy has been the rapid progress in the computer-aided design (CAD) of microelectronic devices such as IC, LSI and VLSI.

The Open Symposium has been planned to cover basically all the areas of the CAD in radio science. However, special emphasis is placed upon the CAD in microelectronics; papers describing recent achievements in the topological/structural design and computer simulation of IC/LSI/VLSI are particularly solicited.

Convener: J. HENAFF  
CNET-DICET  
38-40 rue du Général Leclerc  
F-92131 Issy-les-Moulineaux  
France.

CALL FOR PAPERS

(+) (++)

OPEN SYMPOSIUM (OS2)

Reconstruction, Imaging and Inverse Scattering

Inverse methods play an important role in many seemingly unrelated disciplines, ranging from geophysical seismic exploration to biomedical applications and to problems in electromagnetics and acoustics. However these disciplines possess many underlying similarities.

In the two-day symposium, common methodological techniques are to be addressed by invited and contributed papers. The objective is to review and discuss methods pertinent to various problems rather than to describe specific applications.

Papers are solicited on all aspects of reconstruction, imaging and inverse scattering. Guidance may be obtained from the following list of tentative topics:

1. Foundations of Inverse Scattering Theory
2. Target Identification and Classification
3. Profile Reconstruction
4. Nondestructive Evaluation and Testing
5. Multidimensional Imaging and Inverse Scattering
6. Signal Processing and Extrapolation Techniques  
for Imaging and Inverse Problems

Prospective authors are asked to submit a 1-page abstract before 31 October 1986 to the Symposium Organizer:

Dr. D.L. JAGGARD  
The Moore School of Electrical Engineering  
D2  
University of Pennsylvania  
Philadelphia 19104  
USA.

CALL FOR PAPERS

(+) (++)

OPEN SYMPOSIUM (OS3)

Mm-wave techniques in telecommunications, remote  
sensing and radio astronomy

The use of mm waves in telecommunications, medical science, radio astronomy, etc. has reached an advanced stage of maturity. The Open Symposium is intended to bring together scientists using mm-wave techniques in many areas of research.

Papers dealing with new advances in mm-wave techniques and applications of these techniques are invited.

Convener: J. BAARS  
Max-Planck-Institut für Radioastronomie  
Auf dem Hügel 69  
D-5300 Bonn  
Federal Republic of Germany.

CALL FOR PAPERS

(++)

JOINT SYMPOSIUM (JS7)

Antennas in Plasmas

Antennas have long been used in space plasmas for UHF communications and HF sounding, and antenna impedance measurements have been used to determine plasma properties. Although such work will be included in this Symposium, the main objective is to present the more recent use of the plasma itself as an antenna (e.g. electro-jet modulation) and of antennas specifically designed for VLF wave injection. This subject includes the passive and active use of very long wire (to tens of kilometers) antennas in space plasma.

<u>Conveners:</u> Dr. L.R.O. STOREY	Dr. K.G. BALMAIN
STAR Laboratory	Dept. of Electronic Eng.
Stanford University	University of Toronto
Stanford, CA 94305, USA.	M5S 1A4, Canada.

CALL FOR PAPERS

(++)

JOINT SYMPOSIUM (JS13)

Radar and Radio Studies of the Middle Atmosphere  
and Lower Ionosphere

To review and present results of the MAP Programme and other studies of the Middle Atmosphere and Lower Ionosphere.

Conveners:

Prof. S.A. BOWHILL  
Aeronomy Laboratory  
Dept. of Electrical Eng.  
University of Illinois  
Urbana, Ill.61801  
USA.

Dr. S. KATO  
Radio Atmospheric Science  
Center  
Kyoto University, Uji  
Kyoto 61  
Japan.

CALL FOR PAPERS

(++)

JOINT SYMPOSIUM (JS14)

Active Experiments in Space Plasmas

To cover both experimental results and theoretical studies for all active experiments in the ionosphere and magnetosphere involving waves or radio techniques. Topics will include ionospheric modification by RF transmitter heating, ground and space vehicle wave injection, charged particle beams and chemical releases, and unintentional man-made effects.

Conveners:

Prof. R.L. Dowden  
Physics Department  
University of Otago  
P.O.Box 56  
Dunedin  
New Zealand.

Dr. G. Haerendel  
MPI für Physik und  
Astrophysik  
D-8046 Garching b.München  
Federal Republic of  
Germany.



CALL FOR PAPERS

(++)

JOINT SYMPOSIUM (JS16)

Radio Waves in and from Planetary and Astrophysical  
Plasmas

As a result of the Voyager missions, the number of radio planets has now increased to four: Earth, Jupiter, Saturn and Uranus. Many of the radio waves observed within or from the magnetospheres of these planets have similar characteristics suggesting that their production mechanisms are important, not only within the solar system, but also possibly in the wider astrophysical context. The purpose of this Symposium is to highlight the similarities and differences between planetary radio emissions and to discuss the present theories for their creation. This will be balanced by similar presentations of the characteristics and theories of radio waves from sources outside the solar system, allowing the opportunity of comparing and contrasting the problems that are being tackled in both domains.

Conveners:

Dr. D. JONES  
British Antarctic Survey  
High Cross  
Madingley Road  
Cambridge CB3 0ET  
England.

Dr. R. ECKERS  
National Radio Astronomical  
Observatory  
Socorro  
New Mexico 87801  
USA.

CALL FOR PAPERS

(+)

JOINT SYMPOSIUM (JS17)

Time Domain Waveform Measurements and Applications

The sessions are sponsored by all the Commissions of URSI and the Inter-Commission Working Group on Time Domain Waveform Measurements.

Contributed papers should be on measurements that employ time domain measurement methods and are distinctly relevant to

the scientific work of anyone of the Commissions.

Typical topics include pulse or transient or waveform measurements, time series measurements for the extraction of signal, waveform or physical process information, or system estimation based upon data acquired by time domain methods, and time domain measurements of nonlinear physical phenomena such as soliton propagation.

Convéniers:

Dr. N.S. NAHMAN	Dr. O. HARTAL
Picosecond Pulse Labs Inc.	P.O.BOX 2250
P.O.Box 44	87 Haifa 31021
Boulder, CO 80306, USA.	Israel.

CALL FOR PAPERS

(+) (++)

COMMISSION G SYMPOSIUM (G1)

Incoherent Scatter Studies of the Ionosphere

To review and present recent results of incoherent scatter radars of ionospheric parameters at E layer and higher altitudes.

Convéniers:

Dr. H. RISHBETH	Dr. A. RICHMOND
Rutherford Appleton Lab.	HAO/NCAR
Chilton, Didcot	P.O.Box 3000
Oxfordshire OX11 0QX	Boulder, CO 80307
United Kingdom.	USA.

CALL FOR PAPERS

(+) (++)

COMMISSION G SYMPOSIUM (G2)

The High Latitude Ionosphere

To review and present recent results of high latitude studies by techniques other than incoherent scatter. This would include HF and VHF backscatter, beacon satellite observations, HF soundings, etc.. It would also include studies of magneto-ionospheric interaction.

Conveners:

Dr. T. JONES  
Physics Department  
University of Leicester  
Leicester, LE1 7RH  
United Kingdom

Dr. A. WERNIK  
Space Research Center  
Polish Academy of Sciences  
Bartycka 18  
Warszawa 00 716, Poland.

CALL FOR PAPERS

(+) (++)

COMMISSION G SYMPOSIUM (G3)

Modelling and Mapping of the Ionosphere

To review the many developing models and maps of the ionosphere. To find means of validating, comparing and integrating the models. The emphasis will be on models of interest to URSI needs in telecommunications.

Conveners:

Dr. P. BRADLEY  
Rutherford Appleton Lab.  
Chilton, Didcot  
Oxfordshire OX11 0QX  
United Kingdom

Dr. B.M. REDDY  
Radio Science Division  
National Physical Laboratory  
Hillside Road  
New Delhi 110012  
India.

CALL FOR PAPERS

(+) (++)

COMMISSION G SYMPOSIUM (G4)

The Low Latitude Ionosphere and its Effects on  
Telecommunications

To review and present recent studies of equatorial and low latitude experiments with emphasis on their effects on telecommunications.

Convener: Prof. S. RADICELLA  
PRONARP  
Arenales 1446  
6° "C"  
1061 Buenos Aires  
Argentina.

CALL FOR PAPERS

(++)

COMMISSION H SYMPOSIUM (H1)

Computer Analysis of Plasma Waves

To present advances in the techniques used for the determination and the interpretation of the main statistical parameters of plasma waves in space. Topics will include: spectral analysis of geophysical data using parametric models, detection of three waves non-linear interactions from bispectral analysis, fast determination of the polarization characteristics of plasma waves, and use of interferometric techniques in the study of plasma waves.

Convener: Dr. F. LEFEUVRE  
CNRS/LPCE  
3A, avenue de la Recherche Scientifique  
F - 45045 Orléans Cedex  
France.

CALL FOR PAPERS

(++)

COMMISSION H SYMPOSIUM (H2)

Waves in Space Plasmas

To present contributions in the broad field which do not fit the specialist symposia of Commission H. Contributions will be arranged according to topic and some may be invited to be given as oral presentations.

Convener: Prof. R.L. DOWDEN  
Physics Department  
University of Otago  
P.O.Box-56  
Dunedin, New Zealand.

CALL FOR PAPERS

(++)

COMMISSION H SYMPOSIUM (H3)

Wave Induced Particle Precipitation

To bring together and present a wide range of research relevant to wave induced particle precipitation causes and effects. This includes interactions between electrons and whistler-mode waves, electrostatic and electromagnetic ion-cyclotron waves and ions, non-linear electron and ion cyclotron wave growth, wave-particle-wave interactions such as ULF/VLF and VLF/VLF, the role of such interactions in the acceleration and loss of the radiation belt particles, ionospheric phenomena associated with wave-induced particle precipitation, and new techniques for measuring particle precipitation effects.

Convener: Dr. U. INAN  
STAR Laboratory  
Department of EE/SEL  
Stanford University  
Stanford, CA 94305  
USA.

CALL FOR PAPERS

(++)

COMMISSION H SYMPOSIUM (H4)

Computer Simulation of Man-Made and Natural Phenomena in Space

To present computer simulation studies relating to space plasma research which are becoming increasingly important. Topics to be covered by this Symposium are: computer simulation of active experiments in space (shuttle, rocket, satellite beam, wave and plasma injection), computer simulation of cometary physics (Halley, G-Z comets, global and microphysics), computer simulation of global magnetospheric physics (Earth, Jupiter, Saturn, etc...), and computer simulation of non-linear plasma waves and wave-particle interactions (acceleration, heating, precipitation, aurora, natural waves, etc...).

Conveners:

Dr. H. MATSUMOTO  
RASC  
Kyoto University  
Uji, Kyoto 611  
Japan.

Dr. M.A. ABDALLA  
Department of Physics  
IGPP, UCLA  
Los Angeles, CA 90024  
USA.

## URSI AWARDS

In April 1986, the Secretary General of URSI sent out a circular letter to the Presidents and Secretaries of Member Committees, and to the Chairmen and Vice-Chairmen of the Commissions inviting nominations for candidates for the four URSI Awards. These are as follows: Balth. van der Pol Gold Medal, J.H. Dellinger Gold Medal, Issac Koga Gold Medal and Appleton Prize. The Rules governing these awards are reproduced below.

It is to be noted that the URSI Board decided to shift the deadline for submission of names to 15 October 1986.

The Board wishes to encourage all Member Committees, as well as the Chairmen and Vice-Chairmen of Commissions, to make a special effort and to present worthwhile candidates, thereby giving a wide choice.

### RULES FOR THE AWARD OF THE BALTH. VAN DER POL AND J.H. DELLINGER GOLD MEDALS

1. The Balth. van der Pol and the J.H. Dellinger Gold Medals honour the memory of two scientists who were closely associated with URSI for many years. The awards are made normally at intervals of three years on the occasion of the General Assembly of URSI. If the interval between two General Assemblies is considerably greater or less than three years, the Board of Officers is authorized to modify the date on which the next Medals will be awarded, the period referred to in Art.2, and the dates referred to in Arts 3 and 5.
2. The Medals are awarded to outstanding scientists whose achievements in any of the branches of science covered by the Commissions of URSI have been particularly valuable. No member of the URSI Board of Officers shall be eligible. The work to which an award refers must have been carried out mainly during the six-year period ending one year before the General Assembly at which the award is to be made.
3. The names of not more than two candidates may be submitted by each of (a) the Member Committees of URSI, (b) the Chairmen and Vice-Chairmen of the URSI Commissions. The names

of the candidates must be received by the Secretary General of URSI not later than 30 September of the year preceding that of the URSI General Assembly.

4. The name of each candidate must be accompanied by:

- a) a general summary of the candidate's career and scientific activities;
- b) a review of his recent achievements, including references to the most important papers published by him, alone or jointly, during the six-year period referred to in Art.2;
- c) an outline of the reasons for the nomination of the candidate.

5. As soon as possible after 30 September, copies of all the documents referred to in Art. 4 shall be sent by the Secretary General to the Awards Advisory Panel, the members of which shall be determined by the President of URSI in consultation with the Board of Officers. The Panel is authorized, when necessary, to consult non-members regarding the merits of the candidates, before submitting its own considered views to the Board of Officers not later than 31 January of the year of the General Assembly.

6. The Board of Officers has full authority to select the candidates to whom the awards will be made. In doing so it will take into account the information provided by the proposers of the candidates and also the views expressed by the Awards Advisory Panel. The Board of Officers will bear in mind that it is desirable to make the awards to candidates working in different branches of radio science, and that the J.H. Dellinger Medal should be awarded preferably for work in the field of radio wave propagation.

7. The Board of Officers has full authority to withhold one or both awards if, in the opinion of the members, there is an insufficient number of qualified candidates.



RULES FOR THE AWARD OF THE ISSAC KOGA GOLD MEDAL

1. The Issac Koga Gold Medal honours the memory of a scientist who was closely associated with URSI for many years. The Award is made normally at intervals of three years, on the occasion of the General Assembly of URSI. If the interval between two General Assemblies is considerably greater or less than three years, the Board of Officers is authorized to modify the date on which the next Medal will be awarded, the period referred to in Art. 2, and the dates referred to in Arts 3 and 5.

2. The Medal is awarded to a young scientist, of age not more than 35 on 30 September of the year preceding the General Assembly of URSI, who has made an outstanding contribution to any of the branches of science covered by the Commissions of URSI. No member of the URSI Board of Officers shall be eligible. The work to which the Award refers must have been carried out mainly during the six-year period ending one year before the General Assembly at which the Award is to be made. The Medal will be presented at the General Assembly.

3. The name of not more than one candidate may be submitted by each of (a) the Member Committees of URSI, (b) the Chairmen and Vice-Chairmen of the URSI Commissions. The names of the candidate must be received by the Secretary General of URSI not later than 30 September of the year preceding that of the URSI General Assembly.

4. The name of the candidate must be accompanied by:

- a) a general summary of the candidate's career and scientific activities;
- b) a review of recent achievements of the candidate including references to the most important papers, published alone or jointly, during the six-year period referred to in Art. 2;
- c) an outline of the reasons for the nomination of the candidate.

5. As soon as possible after 30 September, copies of all the documents referred to in Art. 4 shall be sent by the Secretary General to the Award Advisory Panel, the members of which shall be determined by the President of URSI in consultation

with the Board of Officers. The Panel is authorized, when necessary, to consult non-members regarding the merits of the candidates, before submitting its own considered views to the Board of Officers not later than 31 January of the year of the General Assembly.

6. The Board of Officers has full authority to select the candidate to whom the Award will be made. In doing so it will take into account the information provided by the proposers of the candidate and also the views expressed by the Award Advisory Panel. The Board of Officers will bear in mind that it is desirable to make awards to candidates working in different branches of radio science.

7. The Board of Officers has full authority to withhold the Award if, in the opinion of the members, there is not a qualified candidate.

#### RULES FOR THE AWARD OF THE APPLETON PRIZE

1. The Appleton Prize is awarded by the Council of the Royal Society of London and honours the memory of Sir Edward Appleton, F.R.S., President of URSI from 1934 to 1952. The Prize of £250 is awarded normally at intervals of three years on the occasion of the General Assembly of URSI. If the interval between two General Assemblies is considerably greater or less than three years, the Board shall consult the Royal Society before modifying the date on which the next award will be made, and the dates referred to in Articles 2, 3 and 5 below. The Council of the Royal Society reserves the right to discontinue the award.

2. The Appleton Prize is awarded for outstanding contributions to studies in ionospheric physics. The work to which the award refers must have been carried out mainly during the six-year period ending one year before the General Assembly at which the award is to be made. No member of the URSI Board of Officers shall be eligible.

3. The name of one candidate may be submitted by each of

the Member Committees of URSI and each of the Chairmen and Vice-Chairmen of URSI Commissions G and H. The names of the candidates must be received by the Secretary General of URSI not later than 30 September of the year preceding that of the General Assembly at which the award is to be made. The Board of Officers may also nominate a candidate.

4. The name of each candidate must be accompanied by:

- a) a general summary of the candidate's career and scientific activities;
- b) a review of his recent achievements, including references to the most important papers published by him, alone or jointly, during the six-year period referred to in Art. 2;
- c) an outline of the reasons for the nomination of the candidate.

5. As soon as possible after 30 September, copies of all the documents referred to in Article 4 shall be sent by the Secretary General to the Awards Advisory Panel of URSI. The Panel is authorized to seek additional advice from outside its membership, regarding the merits of the candidates, before submitting its own considered views to the Board of Officers not later than 31 January of the year of the General Assembly.

6. After considering the views submitted by the Awards Advisory Panel, the Board of Officers shall submit a short-list of candidates in order of preference, with reasons for the order, to the Royal Society and advise the Royal Society of the total number of candidates.

7. The Council of the Royal Society has full authority to select the candidate to whom the Prize will be awarded or to withhold it if, in its opinion, there is no sufficiently qualified candidate.

THIRD REVIEW MEETING OF ASIA PACIFIC METROLOGY PROGRAMME  
AND  
REGIONAL WORKSHOP IN INDIVIDUALLY SELECTED FIELDS OF  
METROLOGY FOR DEVELOPING COUNTRIES

These meetings were organized by UNESCO, the Commonwealth Science Council and the National Physical Laboratory (CISR) at CISR from 2 to 13 December 1985. They were co-sponsored by CSC, UNESCO, IMEKO, BIPM and URSI.

The review meeting of the APMP was held from 2 to 4 December. A summary of adopted Recommendations is given below.

The Workshop was attended by 61 participants from 19 countries of the Asia Pacific region. The programme included:

- (1) Ten review papers on selected metrology topics, given by the lecturers supported by the sponsoring agencies, and coming from 6 countries.
- (2) Experimental work on one of two options:
  - Option A: planned experimental demonstrations in mass, length, temperature, DC and AC electrical measurements.
  - Option B: experimental work in any two selected areas out of mass, length, temperature, photometry and radiometry, force, pressure and vacuum, low-frequency, high-frequency and microwave electrical measurements.
- (3) Visits to the laboratories of the Department of Weights and Measures and to the Indian Standards Institution in New Delhi.

Participants highly appreciated the review lectures as well as the experimental work. They generally felt that the workshop will be of great benefit to them in planning and development of their national laboratories.

Recommendations adopted during the Review Meeting

1. The information brochure entitled "Asia Pacific Metrology Programme - Aims, Objectives and Activities", which contains detailed information about the evolution of the

programme and its activities till 1985 was considered to be a very useful document. It was, however, suggested that the list of 'Contact Persons' from each country needs to be revised now. Each country was requested to give names and addresses of six 'Contact Persons' to be published in early 1986. It was also recommended that such information brochure should be brought out in revised form every three years at the time of Review Meetings.

2. The need for making two video films, one on 'SI Units' and the other on 'Need for Metrology' or 'Why Metrology' was again emphasized by all the participants. Efforts should be made to secure funds from UNESCO and CSC to produce these films in collaboration with Asia Pacific Institute for Broadcasting Development, Kuala Lumpur, Malaysia.
3. The compilation of a list of manufacturers of measuring instruments in the Asia Pacific Region was appreciated. Information from China and the Republic of Korea is yet to be received. After getting all the information, this list should be published as a 'Compendium'.
4. Good contacts have been established with various international agencies such as BIPM, OIML, ILAC, WECC, IMEKO and URSI. These contacts should be further strengthened through exchange of information, and by involving these organizations in collaborative Seminars/Symposia/Workshops, etc. to be arranged in future under APMP.
5. The 'Directory of Calibration Facilities in the Asia Pacific Region' is to be revised and will be published by the end of 1986.
6. Intercomparisons of standards have been going on very satisfactorily. Reports on 8 intercomparisons were published during 1985. Five intercomparisons are in progress. It was further decided to initiate three new intercomparisons and a few more to be repeated during 1986-87. The National Measurement Laboratories in Australia, China and India were identified as the nodal laboratories for international intercomparisons coordinated by BIPM.
7. A number of calibrations of reference standards of several countries have been completed by CSIRO, Australia. Some more are in progress at CSIRO, Australia and NPL, India. Requirements for future calibrations were projected by the participants which will be taken up during 1986 and 1987.

8. Requirements of Training and Consultancies were also projected by many countries. UNESCO, CSC support will be requested to provide Training Fellowships and Consultancy Missions. Efforts to organize Group Training Programme in Metrology on a regular basis should be continued through UNIDO. A 'Training Workshop' for the practising metrologists should be organized in a middle level metrological laboratory, preferably in the South East Asian Region during 1986/87.
9. The 'Model Metrological System for Small Island States' prepared by the Regional Coordinator was approved with some modifications.
10. A comprehensive UNDP Proposal on Asia Pacific Metrology Programme should be re-submitted through UNESCO.
11. It was strongly recommended that the Secretariat of APMP should continue to be with the Commonwealth Science Council.
12. The 'Logo' of APMP, as recommended at the Manila Steering Committee Meeting was approved. This 'Logo' will be used on all future publications, documents, letter-heads, etc.
13. The new Steering Committee of APMP for the period 1986-89 was elected. It will consist of representatives from Australia, India, China, Republic of Korea and Fiji. The Regional Coordinator from India continues until the next Steering Committee Meeting when a new Regional Coordinator will be elected. It was recommended that the next Steering Committee Meeting be held at Fiji in 1986.
14. The following is the Summary of Activities to be taken up during the next three years (1986-89):
  - Publication of the revised list of 'Contact Persons'.
  - Preparation of two video-films on metrology.
  - Publication of a 'Compendium of Manufacturers of Measuring Instruments in the Asia Pacific Region'.
  - Organization of a Seminar on a specific field of metrology in collaboration with IMEKO (to be hosted by China).
  - Publication of a revised 'Directory of Calibration Facilities'.
  - Intercomparisons of standards (in progress) to be completed; new intercomparisons to be started.

- Calibration of reference standards to be continued.
- Individual training and group training to continue. Training Workshop for practising metrologists in a middle level laboratory to be organized in one of the South East Asia Countries.
- Model Metrological System for Small Island State to be finalized and published as a document.
- UNDP Proposal on APMP to be resubmitted through UNESCO.
- Next Steering Committee to meet at Fiji in September/October 1986.
- Directory of Instrument Repair and Maintenance Facilities to be published.

## ANNOUNCEMENTS OF MEETINGS AND SYMPOSIA

### 5TH INTERNATIONAL CONFERENCE ON ANTENNAS AND PROPAGATION

#### ICAP '87

The 5th International Conference on Antennas and Propagation will be held at the University of York, UK, from 30 March to 2 April 1987. It is organized by The Electronics Division of the Institution of Electrical Engineers in association with the International Union of Radio Science.

It is one hundred years since Heinrich Hertz conducted his classic series of experiments to prove the existence of radio waves. All topics in antennas and propagation have grown out of these experiments. A feature of the 5th International Conference on Antennas and Propagation will be a session devoted to the history of antennas and propagation to celebrate this centenary.

The close association with the International Union of Radio Science (URSI) is continued through cooperation with the British Committee for Radio Science who will be co-sponsoring sessions on Ionospheric Propagation and Millimetre Wave Remote Sensing.

ICAP-87 will promote interaction between those active in the fields of antenna theory and design and electromagnetic wave propagation. The entire radiowave spectrum used for telecommunications, radar, navigation, remote sensing and radio-astronomy will be considered. Contributions are particularly welcome on topics of current and future interest such as conformal arrays, shaped beam spacecraft antennas, microwave holography, adaptive antennas, phased arrays and components, cellular radio propagation and propagation aspects of frequency management.

#### SCOPE

##### Antennas and Related Topics

- Adaptive antennas
- Array antennas
- Phased arrays
- Conformal antennas
- Microstrip antennas



- Wideband antennas
- Reflectors and lenses
- Horns and feeds
- Satellite antennas
- ELF to UHF antennas
- Broadcast antennas
- Mobile antennas
- Radomes
- Radio telescopes
- Measurement techniques
- Mechanical aspects of antennas
- Transients
- Electromagnetic theory
- Numerical techniques
- Scattering and diffraction
- Biomedical techniques
- Others.

#### Propagation and Related Topics

- Ionospheric propagation
- VHF and UHF propagation
- Land mobile propagation
- Urban propagation factors
- Tropospheric propagation
- Satellite communication propagation
- Millimetrewave propagation
- Remote sensing
- Radiometeorology
- Propagation aspects of frequency management
- System planning
- Others.

#### CONTRIBUTIONS

The Organizing Committee invites offers of contributions for consideration for the Programme. The synopsis should be about 500 words plus illustrations if required. It should be provided in sufficient detail to enable the Organizing Committee to assess the contribution and should be submitted to the ICAP-87 Secretariat by 5 September 1986.

The authors of selected synopses will be requested to provide a full typescript of not more than 4000 words (including illustrations) by 30 November 1986.

### CONFERENCE PRIZE

The Organizing Committee will make two awards for the best papers at ICAP-87, one for antennas, the other for propagation. Both content and presentation of the papers will be judged and the award will be presented at the Opening Ceremony of the following event in the ICAP series.

For further information, contact:

ICAP 87 Secretariat  
Conference Services  
IEE  
Savoy Place  
London WC2R 0BL  
United Kingdom.

### INTERNATIONAL WORKSHOP ON IONOSPHERIC INFORMATICS

The International Workshop on Ionospheric Informatics will be held in Novgorod, USSR, from 26 to 28 May 1987. It is sponsored by the USSR Academy of Sciences and URSI.

This Workshop is intended to be a good opportunity for ionospheric scientists from various countries to discuss together the results of research and practice in the modern computerized data analysis techniques, the reference ionosphere models and systems for ionospheric informatics. Discussion on the international ionospheric data exchange in a computer form via the World Data Centres (WDC) appears to be timely.

The proposed preliminary topics for discussion include:

- (1) Development of architecture of the computer-driven systems specific for the ionospheric information processing and summarizing (hardware and software).
- (2) Inter-relation of reference ionosphere models and flux of observational data in the ionospheric informatics.
- (3) Ground-based and satellite-borne systems of digital ionosondes and other means for real-time monitoring the ionosphere.

- (4) Development of Banks of ionospheric data.
- (5) Use of the solar and geophysical controlling parameters in systems for the ionospheric data processing and reduction.

The Workshop will include invited and contributed presentations in English. Papers may be in oral or poster form.

The Programme Committee includes Prof. V.V. Migulin (Chairman), Prof. G.S. Ivanov-Kholodny, Dr. T.L. Gulyaeva, Prof. L. Bossy, Dr. C.M. Rush (to be confirmed), Dr. N.P. Danilkin, Dr. G.M. Emelianov, Dr. L.F. McNamara, Prof. K. Rawer, Dr. B.M. Reddy, Prof. K.B. Serafimov, Prof. V.V. Soroka, and Dr. A.V. Shirochkov.

The deadline for submission of abstracts of papers is 20 November 1986. They should be sent to:

Dr. T.L. Gulyaeva  
IZMIRAN  
USSR Academy of Sciences  
142092 Troitsk  
Moscow Region, USSR.  
Telex: 412623 SCSTP SU  
Telephone: 232-19-21.

## BOOKS PUBLISHED BY URSI PERSONALITIES

D.T. GJESSING (former Chairman, URSI Commission F)

*Target adapted matched illumination radar, principles and applications*

IEE Electromagnetic Waves Series 22, Peter Peregrinus, 1986, 172 pages, ISBN 0 86341 957 X.

LIST OF URSI OFFICERS AND OFFICERS OF MEMBER  
COMMITTEES: AMENDMENTS

1. URSI Commissions

Commission A - Electromagnetic Metrology

Netherlands: Mr. R. Kaarls, Van Swiden Laboratorium, Postbus  
654, 2600 AR Delft.

Nigeria: Dr. L.A. Buraimoh Igbo, University of Ife,  
Ile-Ife.

Commission B - Fields and Waves

Netherlands: Prof. Dr. A.T. de Hoop, Technische Hooge-  
school, Afdeling Elektrotechniek, Postbus  
5031, 2600 GA Delft.

Nigeria: Dr. L.B. Kolawole, Department of Physics,  
University of Ife, Ile-Ife.

Commission C - Signals and Systems

Netherlands: Prof. Dr. J.P.M. Schalkwijk, Technische Hooge-  
school, Afdeling Elektrotechniek, Postbus 513,  
5600 MB Eindhoven.

Nigeria: Dr. (Mrs) A.A. Nwabuzor, Department of Elec-  
trical Engineering, University of Ilorin,  
Ilorin.

Commission D - Electronic and Optical Devices and  
Applications

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MB Eindhoven.

Nigeria: Prof. R.I. Salawu, Department of Electrical  
Engineering, University of Lagos, Akoka,  
Yaba, Lagos.

Commission E - Electromagnetic Noise and Interference

Netherlands: Mr. A. de Jong, Dr. Neher Laboratorium, St.  
Paulusstraat 5, 2264 XZ Leidschendam.

Nigeria: Dr. G.O. Ajayi, Department of Electronic and  
Electrical Engineering, University of Ife,  
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Commission F - Wave Propagation and Remote Sensing

Netherlands: Dr. L.P. Ligthart, Technische Hoogeschool,  
Afdeling Elektrotechniek, Postbus 5031,  
2600 GA Delft.

Nigeria: Prof. I.E. Owolabi, Department of Electrical  
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Commission G - Ionospheric Radio and Propagation

Netherlands: Mr. H. Kelder, KNMI, Postbus 201, 3730 AE  
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Nigeria: Prof. J.O. Oyinloye, University of Ilorin,  
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Commission H - Waves in Plasmas

Netherlands: Prof. M.P.H. Weenink, Technische Hoogeschool,  
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MB Eindhoven.

Nigeria: Dr. J. Akinrimisi, Department of Physics, Universi-  
ty of Lagos, Yaba, Lagos.

Commission J - Radio Astronomy

Netherlands: Mr. H.C. Kahlmann, Radiosterrewacht Westerbork,  
Schattenberg 1, 9433 TA Zwiggelte.

Nigeria: Prof. S.E. Okoye, Department of Physics and  
Astronomy, University of Nigeria, Nsuka.

2. CHANGE OF ADDRESS

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