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URSI - 60th ANNIVERSARY

In July 1919, the International Research Council was created on the initiative of the Academies of Science. The principal object of the IRC was to bring together the many small and independent groups of scientists, more or less international in character, that had been formed during the 19th century. Some of these groups tended to overlap with each other and the intention was that they should be replaced by, or absorbed into, a few newly-created Scientific Unions, each covering one of the main branches of science.

In 1919, URSI and four other Unions were constituted and by 1923 three additional Unions had been created. There were no further additions before 1947.

URSI had been preceded by the International Commission on Scientific Wireless Telegraphy which had been formed in Brussels in 1913, mainly on the initiative of Dr. Robert Goldschmidt, a Belgian scientist who took a practical interest in radiocommunications from the early years of the century. With the active support of King Albert I, he had established a radiocommunication link between Brussels and the Belgian Congo (now Zaïre).

The formal proposal to create URSI was submitted by the Belgian Delegation to the IRC Assembly in 1919 and Dr. Goldschmidt, who had been Secretary of the 1913 Commission, became the first Secretary General of URSI with General Ferrié as the first President.

Member Committees of URSI have already been informed about the provisional arrangements for marking the 60th Anniversary of URSI. A special two-day Colloquium is being organised on 17 and 18 September under the Patronage of the present King of the Belgians, and a number of distinguished scientists, including several Nobel Prizewinners, will present their views on various aspects of telecommunications and the impact of this branch of science on mankind. The Colloquium will be held in the Palace of the Academies in Brussels, the actual building in which URSI was constituted 60 years ago.

The Programme Committee consists of Mr. J. Voge (Chairman), Prof. Bossy (President of the Belgian URSI Committee), Profs Stumpers, Van Bladel and Hontoy. The local arrangements are in the hands of the Belgian URSI Committee which will act as host for the occasion.

Although accommodation is limited in the Palace of Academies, it is hoped that all our Member Committees will be represented at the Anniversary Colloquium.

Provisional Programme
(subject to revision)

Monday, 17 September 1979

Historical Session

1. King Albert of the Belgians and the International Commission on Scientific Wireless Telegraphy (1913-1914). To be presented by the Member Committee of URSI in Belgium. President: Prof. L. Bossy.

2. The development of URSI following its constitution in 1919. To be prepared by M.B. Decaux (France), Honorary President of URSI.

Scientific Session I

3. Recent developments in techniques in radio science. Dr. L. Esaki (Japan) and Academician A.M. Prokhorov (USSR).

4. Radio science in the study of the Universe: Radio Astronomy. Prof. A. Hewish (UK).

5. Radio wave propagation in the terrestrial atmosphere. Prof. W. Dieminger (FRG) and Prof. H.G. Booker (USA), Honorary Presidents of URSI.

Tuesday, 18 September 1979

Scientific Session II

6. Radiocommunications in the service of the public. Prof. Aigrain (France), Minister of State.

7. Radiocommunications as an aid to development. M. M. Mili, Secretary General of the International Telecommunication Union.

8. Radiocommunications and international relations. Mr. S. McBride, President of the UNESCO Commission on Communication Problems.

9. Radiocommunications and economic problems. Prof. K. Arrow (USA).

10. General Conclusions. Prof. W.N. Christiansen (Australia), President of URSI.

UNESCO AND FUNDAMENTAL RESEARCH

It is understandable that UNESCO should place great emphasis on technological progress, and on the support of scientific research programmes designed to lead to early useful applications, particularly in developing countries.

In URSI, much of the research with which we are concerned is fundamental in character and is not aimed at the attainment of immediate results of a practically useful kind. On the other hand, it is important to remember that the remarkable advances in many branches of telecommunications in recent years have their foundations in basic research work which was of interest to URSI 10 or 15 years ago, but which was not then regarded as likely to lead to results of immediate practical value.

The time-lag between the acquisition of new knowledge resulting from scientific research and the utilisation of this knowledge in the technological field may often be long and it may be a source of impatience to the organisations which support research.

In this context it seems worth quoting some remarks made by Monsieur M'Bow, Director General of UNESCO, at a Symposium in Munich on 18 September 1978, in connection with the celebration of the 100th anniversary of the birth of Albert Einstein in 1979. In his reference to the rôle of research in scientific work, M. M'Bow drew attention to the fact that:

"The present tendency is to limit this rôle, at least
"in the choice of fields where research can be carried
"out, under the pressure of immediate demands deriving
"from the requirements of technological development within
"the framework of short- or medium-term production pro-
"grammes. Admittedly, fundamental and applied research
"can no longer be dissociated in many fields, but there is
"a real danger of witnessing an impoverishment of funda-
"mental research and a dwindling of credits - seriously
"compromising the longer-term future. It suffices to look
"back to the sources of Einstein's inspiration, for us to
"realize that the majority of his discoveries would have
"been impossible if he had from the outset set himself
"utilitarian objectives in his research, if he had been
"fascinated by anything other than knowledge of the laws
"of the cosmos. It is hardly necessary to add that today
"it is as vital as ever, for science, that the area of
"pure research be preserved and defended".

M. M'Bow returned to this theme in his peroration.

"Between the age of Einstein and our own, the ability of society to absorb new, disturbing and revolutionary ideas has profoundly changed. In its time, the theory of relativity was fiercely contested on all scientific fronts.

"Nowadays invention and innovation are not only much more warmly welcomed by the scientific community as a whole, but are generally looked for and fostered by society. Scientific research has become the driving force of progress. The danger now threatening it arises less out of incomprehension or intellectual rigidity than from the attempt to subordinate it too closely to technological imperatives.

"This reversal of attitudes closely mirrors the fantastic trajectory described in half a century by the human intellect. And among those who have made the most towering contribution to this process, none, without a doubt, occupies a more important place than the son of Ulm and Munich, the old sage of Princeton, in whose memory we are here gathered and who remains, to this day, the only man entitled to say, in all simplicity: "Newton and I".

Brussels, September 1978

C.M. Minnis

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COMPOSITE CURRENCY UNITS AND "BASKETS" OF CURRENCIES

by

C.M. Minnis
Acting Secretary General, URSI

Introduction

This article is intended to illustrate a possible new way of determining the unit subscription payable by the Member Committees of URSI. It has been prepared in response to the suggestion of the Chairman of the Standing Finance Committee made during the URSI Council Meeting in Helsinki on 7 August 1978.

The Board of Officers will examine the question at one of its future meetings, but it is believed that Member Committees may also wish to give some thought to it well in advance of the 1981 Assembly. Comments or suggestions will be welcome and should be addressed to the URSI Secretariat.

1. The Annual Contributions of Member Committees

For many years the annual contributions paid to URSI by its Member Committees have been expressed in terms of US dollars. Between mid-1971 and the URSI Assembly in Lima in 1975, the value of the dollar, relative to many currencies, had fallen by about 25% and, in the Secretary General's Report to the Finance Committee in 1975, it was suggested that consideration should be given to the replacement of the dollar by a "composite currency unit" (CCU), sometimes referred to nowadays as a "basket of currencies". At that time, it was not expected that the value of the dollar would depreciate much further and, in any case, it seemed preferable to avoid introducing an unfamiliar new unit in place of the dollar, unless there were strong reasons for doing so.

By the time of the Helsinki Assembly in August 1978, the value of the dollar had fallen by further 16% since the Lima Assembly. In view of this situation, and in the absence of any foreseeable reversal in the downward trend, the Chairman of the Finance Committee (Dr. Saxton) expressed the view that the adoption of a composite currency unit should be seriously considered at the next Assembly in 1981. The purpose of this article is to explain what would be implied if such a unit were adopted in place of the dollar.

2. The Cost of Maintaining a Constant Level of Activity

The URSI expenditure budget, which is adopted by the Council at each Assembly, is designed to enable the activities of URSI to be maintained at a constant level during the following three-year period. These activities include the printing and circulation of the URSI Bulletin and other publications, support for our two Inter-Union Commissions, office expenses, grants for symposia, etc., and the cost of supporting them must be covered almost entirely by the annual contributions received from our Member Committees.

Until about 1970 the annual cost of these activities, when expressed in terms of the dollar or any other stable currency, remained almost constant. The small increases in the annual contributions during the 1950's and 1960's were designed to compensate for the slow, long-term increase in the cost of goods and services in general.

In mid-1971 the era of stable currencies and slowly increasing costs came to an end, for reasons which are not relevant to the present discussion. The expenditure budgets adopted at our Assemblies in 1972, 1975, and 1978 were designed to maintain an almost constant level of activity. However, the number of dollars required to attain this objective has increased rapidly since 1971 for two reasons:

- (a) the value of the dollar has fallen (for example, by about 7% per year relative to the Belgian franc;
- (b) the cost of goods and services in many countries has risen by between 5% and 20% per year in terms of local currencies (excluding extreme values); the average rate in Belgium since 1970 was 8% per year and for 1978 it was 3.9%.

3. The Concept of a Composite Currency Unit

In view of the continuing weakness of the dollar, it is sometimes suggested that URSI should replace it by the Swiss franc, the Deutschmark, or some other strong currency when specifying the annual contributions payable by the Member Committees of the Union. It should be remembered, however, that the dollar was a strong and stable currency when it was adopted by URSI, and that the present strong currencies could, over the next 5 or 10

years, depreciate in value.

It must be admitted that, no matter what single currency is chosen for reference purposes, there must always be a risk that its value, relative to other currencies, will fall over a given period of time. This risk could be reduced if, instead of choosing a single currency, a composite unit consisting of several appropriately selected currencies were adopted. For example, if there is a probability of 50% that each of the currencies A, B and C will fall in value by at least a given amount over a given period of time, then the probability of such a fall will be only 12.5% for a composite unit consisting initially of equal amounts, in value, of the three currencies. For obvious statistical reasons, this argument is strictly valid only if changes in the value of A, B, and C are uncorrelated with each other. Hence, in deciding which currencies to include in a simple composite unit, it would be unwise to include both the Belgian franc and the Deutschmark, because they are related to each other through the European currency "snake". Similarly, the pound sterling and the US dollar should not both be included, because the value of the pound is often influenced by that of the dollar.

4. A Practical Composite Currency Unit

The composite currency unit suggested to URSI in 1975 still seems to merit consideration; it consists initially of equal amounts (in value) of the Swiss franc, the Belgian franc, and the US dollar. The Belgian franc is included because about 40% of our expenditure is incurred in Belgium on printing costs, office expenses, etc. The Swiss franc has a record of strength and long-term stability and, since it is not one of the European "snake" currencies, changes in its value are not related to those of the Belgian franc. The US dollar is retained because it is widely believed that, sooner or later, appropriate steps will be taken to halt or reverse the downward trend of the past 8 years. It is worth noting also that the present relative strength of the Swiss franc is partly due to the large numbers of holders of dollars who wish to avoid further losses by exchanging them for one of the stronger currencies, and especially for the Swiss franc. It seems probable, therefore, that when clear signs appear that the dollar has ceased to depreciate, there will be a tendency for holders of Swiss francs to exchange them for dollars. If this proves to be so, the inclusion

of both these currencies in a composite unit would be expected to have a stabilising effect on its value.

It is not possible to forecast accurately what the result of the adoption of such a unit would be over a given future period of time. On the other hand, it is not difficult to calculate what would have happened if such a unit had been adopted at some date in the past. Two illustrations of this are given below (Section 5).

5. Tests of Two Composite Currency Units

The composite currency unit discussed above consists of equal amounts, in value, of the US dollar, the Belgian and the Swiss francs, but its actual composition depends, obviously, on the date when the unit is first adopted. Two dates have been chosen for purposes of illustration: June 1971, a few months before the beginning of the monetary crisis, and January 1975, the year of the URSI Assembly in Lima. The composition of each of the two units (CCU-71 and CCU-75) is shown in Table 1, and also their total initial values in each of the three component currencies.

Table 2 shows the changing value of CCU-71, expressed in terms of dollars and of several other currencies, in January of the years 1972 to 1979 inclusive. Although the unit had a value of \$1.00 in June 1971, this had increased to \$1.75 in January 1979: an average increase of 7.7% per year. As might be expected, the value of the unit increased in terms of the weaker currencies (\$, French franc and £) and decreased in terms of the stronger currencies (Swiss franc, Deutschmark and Yen).

Table 3 has been constructed in the same way as Table 2, but it refers to CCU-75. In this case the average increase in the dollar value of the unit was 6.4% per year.

It is interesting to note that, when expressed in terms of Belgian francs, the values of CCU-71 and CCU-75 remain almost the same from year to year. This must be regarded as a coincidence; it results from the fact that the decrease in the value of the dollar during the period in question was compensated by the increase in the value of the Swiss franc. It must not be concluded that this relationship will be maintained indefinitely.

Table 4 is similar to Tables 2 and 3 and simply shows the value of the dollar in terms of the currencies used

in Tables 2 and 3.

6. Application to URSI

The URSI Finance Committees which met at the Assemblies in 1969, 1972, 1975 and 1978 were obliged to recommend a series of increases in the unit contributions payable by the Member Committees of the Union. These increases were determined by making estimates not only of the future rate of depreciation of the dollar, but also of the expected increases in costs of all kinds. The unit contributions actually adopted for the years 1971-1981 were expressed in dollars and are shown in Table 5 (Col.A).

If the unit contribution for 1971 had been fixed at 175 CCU instead of 175 dollars, its value, when expressed in dollars, would have increased automatically as shown in Table 5 (Col.B). The rise in the value of the unit from \$175 to \$306 in 1979 is entirely due to the changes, during this interval, in the values of the dollar and the Belgian and Swiss francs: the three constituents of CCU-71.

If an additional assumption had been made in 1971, namely that costs would increase at a rate of 6% per year, the value of the unit contribution would have changed as shown in Table 5 (Col.C). The similarity between the amounts in Cols A and C is obvious.

In Table 6, Cols A, B and C correspond to those in Table 5, except that they are based on the assumption that CCU-75 was adopted in January 1975, and that the unit was fixed at 250 CCU (Table 1) instead of 250 dollars.

In retrospect it is clear that the increase in the unit contribution to \$250 for the year 1975 was insufficient, and that \$300 would have been more appropriate. However, the relevant decision was made in mid-1972 before the extent and severity of future events had become apparent. It seems very likely that, if CCU-75 had been adopted at the time of the Assembly in 1975, the unit contribution would than have been fixed at 300 CCU rather than 250 CCU. Table 6 (Cols D and E) shows also the changes in the value of the larger unit from 1975 until 1978, and also the modifications which would have resulted from the assumption of a 6% per year increase in costs. The similarity between Cols A and E corresponds to that noted above with reference to Table 5 (Cols A and C).

Conclusion

Increases in the unit contribution payable by Member Committees of URSI have been agreed at successive General Assemblies. Before recommending the increases the Finance Committee has been obliged to make forecasts of future changes in the value of the dollar, and to make allowances for the expected increases in the cost of maintaining the activities of the Union during each triennium. The unit contribution has risen in seven steps from \$175 in 1971 to \$520 in 1981, an average increase of 12% per year.

Approximately the same result could have been achieved, automatically up to 1979, by replacing the dollar by a fixed composite currency unit (in 1971 or 1975) and by assuming also an annual increase in the number of units payable by 6% per year.

It is obviously not suggested that, after the eventual adoption of a composite currency unit, the Standing Finance Committee would no longer be required. It would still be necessary for the Committee to confirm that the automatic increases in the unit contribution were consistent with the actual needs of the Union, and to make small adjustments when this seemed necessary.

Table 1. Composition of CCU-71 and CCU-75

	<u>CCU-71</u>	<u>CCU-75</u>
US dollars	0.333	0.333
Belgian francs	16.7	12.3
Swiss francs	1.36	0.85
Total initial value \$	1.00	1.00
of unit BFr	50.00	37.00
SFr	4.10	2.60
=====	=====	=====

Table 2. Value of CCU-71 expressed in Terms of Various Currencies

Date	\$	FF	£p	Yen	FB	DM	FS
June 71	1.00	5.5	42	360	50	3.5	4.1
Jan 72	1.06	5.5	42	333	48	3.5	4.1
73	1.07	5.5	46	322	47	3.4	4.1
74	1.17	5.4	51	328	47	3.1	3.7
75	1.32	5.9	57	396	49	3.2	3.4
76	1.28	5.7	63	388	50	3.3	3.4
77	1.35	6.8	80	398	49	3.3	3.3
78	1.52	7.3	80	380	50	3.2	3.1
79	1.75	7.3	86	345	51	3.2	2.8

Table 3. Value of CCU-75 expressed in Terms of Various Currencies

Date	\$	FF	£p	Yen	FB	DM	FS
Jan 75	1.00	4.5	43	300	37	2.4	2.6
76	0.97	4.3	48	294	38	2.5	2.6
77	1.02	5.1	60	301	37	2.4	2.5
78	1.13	5.4	59	283	37	2.4	2.3
79	1.28	5.3	63	253	37	2.3	2.1

Table 4. Value of \$1 expressed in Terms of Various Currencies

Date		FF	£p	Yen	FB	DM	FS
June 71		5.5	42	360	50	3.5	4.1
Jan 72		5.2	39	314	45	3.3	3.8
73		5.1	43	301	44	3.2	3.8
74		4.6	43	280	41	2.6	3.2
75		4.5	43	300	37	2.4	2.6
76		4.5	50	303	39	2.6	2.6
77		5.0	59	295	37	2.4	2.4
78		4.8	53	250	33	2.1	2.0
79		4.2	49	197	29	1.8	1.6

Table 5. Actual and Composite Unit Contributions:1971-79
(Values expressed in dollars)

	<u>A</u>	<u>B</u>	<u>C</u>
June 71	175	175	175
Jan 72	200	186	197
73	200	187	210
74	200	205	244
75	250	231	292
76	300	224	300
77	350	236	335
78	400	266	400
79	400	306	488
80	460		
81	520		

Key:

- A. Actual unit contributions adopted by the Assemblies in 1969, 1972, 1975 and 1978.
- B. Annual value of CCU-71 as defined in Table 1.
- C. Annual value of CCU-71, but augmented by 6% per year from 1971 onwards.

Table 6. Actual and Composite Unit Contributions:1975-79
(Values expressed in dollars)

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
Jan 75	250	250	250	300	300
76	300	243	258	291	308
77	350	255	287	306	344
78	400	283	337	339	404
79	400	320	381	384	485
80	460				
81	520				

Key:

- A. Actual unit contributions adopted by the Assemblies in 1972, 1975 and 1978.
- B. Annual value of CCU-75 as defined in Table 1.
- C. Annual value of CCU-75, but augmented by 6% per year from 1975 onwards.
- D, E. Cols D and E have the same origin as Cols B and C, but take 300 units as the starting value in 1975 instead of 250.

SOLAR MAXIMUM YEAR

The forthcoming solar-cycle maximum will occur during the period 1979-81, when the frequency of solar flares and solar particle emissions will be much greater than at other phases of the cycle.

The proximity of the Sun makes it suitable for detailed studies relating to the problems of the propagation of energetic radiations and particle streams. Such studies also promise to throw light on the physics of acceleration processes in cosmic space.

The cooperative programmes of observations during SMY are being coordinated by SCOSTEP in cooperation with IAU, IUPAP, IUGG and COSPAR. The programme includes three specific studies each with an organising committee:

Flare build-up study

Chairman: Z. Svestka,
Space Research Laboratory,
Beneluxlaan 21,
3527 HS Utrecht,
Netherlands.

Study of energy release in flares

Chairman: D. Rust,
American Science and Engineering Co.,
955 Massachusetts Ave.,
Cambridge, Mass. 02139,
USA.

Study of travelling interplanetary phenomena

Chairman: M. Dryer,
Space Environmental Lab.,
NOAA/ERL,
Boulder, Col. 80302,
USA.

The overall programme is coordinated by a Steering Committee in which the cooperating Unions and ICSU Committees are represented (Chairman: C. de Jager; Secretary: P. Simon, DASOP, Observatoire, 92190 Meudon, France).

It is not intended that there should be a continuous observing programme but there will be a number of coordinated observing intervals. Further information will be

given in the SMY Newsletter. Those who are interested should make contact with Dr. Simon or one of the Chairmen of the three Coordinating Committees.

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FORMATION OF IMAGES FROM SPATIAL COHERENCE FUNCTIONS IN ASTRONOMY

IAU Colloquium No 49: "Formation of Images from Spatial Coherence Functions in Astronomy" was held in Groningen, The Netherlands, 10-12 August 1978. The Scientific Organizing Committee consisted of W.N. Brouw (Chairman, Netherlands), E.J. Blum (France), M.H. Cohen (USA), T.W. Cole (Australia), R.D. Ekers (Netherlands), E.B. Folanont (USA), M. Ishiguro (Japan) and G.G. Pooley (United Kingdom). The Chairman of the Local Organizing Committee was E. Raimond.

The Colloquium was attended by 112 participants from 13 countries. The programme included 11 invited lectures and 27 contributed papers which covered the following topics: Fundamental theory and deficiencies of aperture synthesis; Optical interferometric techniques; Digital and analogue processing methods for synthesis observations; Measurement errors in rotational synthesis, their effects in the map plane and methods to combat them; Fundamental aspects of aperture synthesis with limited or no phase information; Resolution enhancement, super-resolution, maximum entropy and maximum likelihood; Other restoration techniques; Data display methods in an interactive data processing environment.

Although the main emphasis was on aperture synthesis techniques in radio astronomy, the interaction with optical interferometry and image reconstruction techniques in crystallography and in the medical sciences turned out to be mutually beneficial.

At the present time the various image formation techniques used in astronomy all seem to be in a state where an intensive exchange of ideas is extremely useful.

The entire conference was characterized by very lively discussion in which many of the attendees participated.

The Colloquium proceedings will be edited by C. van Schooneveld. They are to be published by D. Reidel Publishing Co.

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FIFTH INTERNATIONAL SYMPOSIUM ON INFORMATION
THEORY (ISIT-5)

The Symposium will be held in Tbilisi (Georgian SSR, USSR) July 3-7, 1979. It is sponsored by the Academy of Science of the USSR (Council for Cybernetics, Institute for Problems of Information Transmission, and Computer Centre of the Academy of Science of the Georgian SSR), and is co-sponsored by URSI. It is intended to cover mathematical problems and modern applications of information theory. The programme will include papers on:

1. Mathematical problems of information theory.
2. Coding and processing of sources and images.
3. Error-correcting codes.
4. Statistical theory of signals and noise.
5. Multi-component stochastic systems.
6. Sources and channels networks.

All mail should be addressed to Organising Committee ISIT-5, Institute for Problems of Information Transmission, 19 Ermolova St., Moscow 103051, USSR. Phone: 209-49-81.

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PLASMA PHYSICS

The International Conference of Plasma Physics will be held in Nagoya, Japan from 7 to 11 April 1980. This event combines the 4th Kiev Conference on Plasma Physics and the 4th Congress on Waves and Instabilities in Plasmas.

The Conference will cover almost all subjects in plasma physics, but the emphasis will be placed on fully-ionized rather than partially-ionized gases.

Contributed papers will be selected on the basis of one-page abstracts.

Deadlines:

30 November 1979 for 1-page abstracts.

15 February 1980 for 4-page manuscripts.

Participants will receive copies of the Proceedings containing the selected 4-page contributed papers.

The Registration Fee will be 15,000 yen.

Those interested in receiving further information or the Second Announcements (October 1979) are invited to write to:

Prof. Y.H. Ichikawa,
International Conference of
Plasma Physics,
Institute of Plasma Physics,
Nagoya University,
Nagoya 464, Japan.

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ELECTROMAGNETIC WAVES: MUNICH 1980

The next URSI Symposium in the series on Electromagnetic Waves and related subjects will be held in Munich, F.R. Germany, from 26 to 29 August 1980. The Chairman of the Programme Committee is Prof. L.B. Felsen (Chairman, URSI Commission B) assisted by the Vice-Chairmen Profs H.G. Unger and H. Lindenmeier. The Local Organising Committee is chaired by Prof. G. Piefke.

The language to be used during the Symposium will be English.

Prospective authors are invited to submit the title and a 30-line abstract of their papers before 30 September 1979. It is absolutely necessary for authors to obtain security clearance for publication of their papers before submitting their abstracts. Papers should deal with recent developments in basic electromagnetics, em wave propagation and guidance, as well as radiation scattering and diffraction. Special emphasis will be given to theoretical developments including hybrid

analytical-numerical methods, and to relevant contributions from related fields such as acoustics.

Topics of current interest are:

1. Wave optics and optical waveguides.
2. Millimetre-wave antennas and guides.
3. Antennas: analysis and synthesis.
4. EM sensing and probing (including the off-shore environment.
5. Inhomogeneous and random media.
6. Interaction with matter, including biological effects.
7. Transient and non-linear phenomena.
8. Underwater acoustic ducting and scattering.

The Programme Committee will respond to prospective authors before 31 December 1979. The full texts of papers accepted must be received before 15 April 1980 for publication in the Proceedings which participants will receive on registration.

The Organizing and Programme Committees would like to have an early indication of the number of participants. Prospective participants are invited to complete a questionnaire and to return it not later than 1 June 1979. Copies of the questionnaire and other information are available from the Secretary of the Organizing Committee:

Dr. H. Hochmuth,
URSI-Symposium,
Postfach 70-00-03,
D-8000 Munich 70,
Federal Republic of Germany.

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ALBERT EINSTEIN: 100th ANNIVERSARY

This issue of the URSI Bulletin goes to press on the 100th Anniversary of the birth of Albert Einstein. Although Einstein never had any direct relations with URSI, it is worth noting that he had contacts at various times with Belgium and Belgian scientists, and he lived for some years on the coast at Le Coq.

One of his early visits to Brussels was in 1911 when

he attended the First Solvay Conference. This was organised by Ernest Solvay, a well-known Belgian chemist, and was designed to provide an occasion for a discussion of the then current problems in basic research in physics. Attendance was by invitation and, from URSI's point of view, it is interesting to note that Robert Goldschmidt was present on this occasion. Goldschmidt had already been actively engaged for several years in research on what we would now refer to as radio science, and it was in 1912 that he took the initiative which led to the formation, in 1913, of the International Commission on Scientific Wireless Telegraphy. He became Secretary General of URSI on its constitution in 1919 and retained this office until his death in 1935.

There exists a striking photograph of the participants at the 1911 Conference. Many of them were still young at that time but their names are now familiar to everyone who has ever studied physics. Indeed the list could represent the basis for a "Who's who in Physics" at the beginning of the century:

Brillouin	Lindemann
Marie Curie	Lorentz
de Broglie	Nernst
Einstein	Perrin
Goldschmidt	Planck
Hasenohrl	Poincaré
Herzen	Rubens
Hostelet	Rutherford
Jeans	Solvay
Kamerlingh Onnes	Sommerfeld
Knudsen	Warburg
Langevin	Wien

In the photograph there is a blackboard and, although it is partly hidden by Goldschmidt and Planck, it is just possible to discern on it several algebraic symbols:

$$\frac{\check{W}}{\lambda} = \frac{hc}{\lambda^5} \cdot \frac{1}{e^{\frac{hc}{k\lambda T}} - 1}$$

which we now recognise as Planck's formula. Since Wien,

Jeans, Einstein and de Broglie were all present, it was probably inevitable that Planck's still rather novel quantum theory should have been a subject for debate.

In URSI Commission J, it is thanks ultimately to Planck's ideas that radioastronomers can identify the origins of the numerous emission lines now in the process of being discovered. At the other end of the URSI Commission "spectrum", Commission A can take some of the credit for the development of atomic clocks of such high precision that it is now possible to look for the changes, predicted by relativity theory, in the time recorded by moving clocks.

It would not be difficult to trace links between the activities of the other URSI Commissions and the work of Einstein and his contemporaries at the beginning of the century. This seems appropriate, for the flowering of modern physics coincided with the early research work in radio science undertaken, 70 years ago, by Ferrié, Goldschmidt and others who were later closely associated with the birth of URSI.

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