

Published by the European Federation of Organisations for Medical Physics (E.F.O.M.P.)

Letter from the new President

Dear colleagues and friends,

With the change-over from the eighties to the nineties the Officers of EFOMP changed, as you determined in the Council Meeting in Paris.

EFOMP owes a great deal to its Immediate Past President, Professor Hans Leetz, for his wise conduct of its affairs and his diligent pursuit of the interests of European Medical Physicists during his Presidential term. After ten years the Federation comes to maturity; it is more and more frequently consulted and respected as the representative body for medical physics and medical physicists at the European level.

Last September there was a highly successful meeting in Luxembourg on the provision of medical physicists as qualified experts in ionising radiation. The meeting arose from the E.C. directive of 1984 on the protection of the patient and fuller details are presented elsewhere in this issue of E.M.P. News. Our committee on professional affairs, education and training has been very constructive in presenting a strong case for the important role of the medical physicist to be recognised. All this activity creates opportunities for us to develop our contacts with E.C. bodies into more formal relationships; these opportunities will be cultivated. The wider enterprise will be successful only if all of you work in parallel, in your individual settings, to make the role of the medical physicist recognised and respected in health care.

The Federation, in conjunction with the commission of the E.C., must develop its existing framework for education and training with a view to establishing mutual recognition of qualifications within the term of the 'patients' directive.

At the last Officer's meeting, in February 1990, it was decided to grant the EFOMP Travel Award for 1990 to a young Czechoslovakian colleague, Bohuslav Plesko. I hope that the generous Award of IGE/CGR-MeV will contribute both to his professional development and to that of future recipients and that it will stimulate inter-institutional contacts in Europe.

Our scientific Committee is preparing the celebration of the first decade of EFOMP, through "Medical Physics '90". The meeting will be in Oxford, U.K. and will be hosted by our colleagues of the I.P.S.M./H.P.A. I hope that many of you will contribute scientifically by presenting papers and posters. Aside from the scientific meetings there will be EFOMP Committee meetings and the annual EFOMP Council Meeting. I hope to see all EFOMP member countries represented in these meetings and that the active participation of the delegates will be consolidated into policies which give the Federation a strong and mature role in its second decade.

P. Inia

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Stop Press

EFOMP Summer School The Qualified Expert in Radiophysics — Nuclear Medicine

Provisional dates have now been fixed for the first EFOMP Summer School for the Qualified Expert in Radiophysics. They are 30th June to 7th July, 1991. The Summer School will be held in Dublin, REPUBLIC of IRELAND and will cover requirements in Nuclear Medicine. A certificate will be awarded to those who complete the Summer School successfully. Further information may be obtained by writing to Mr. K. Carley, I.P.S.M., PO Box 303, York YO1 2WR, U.K.



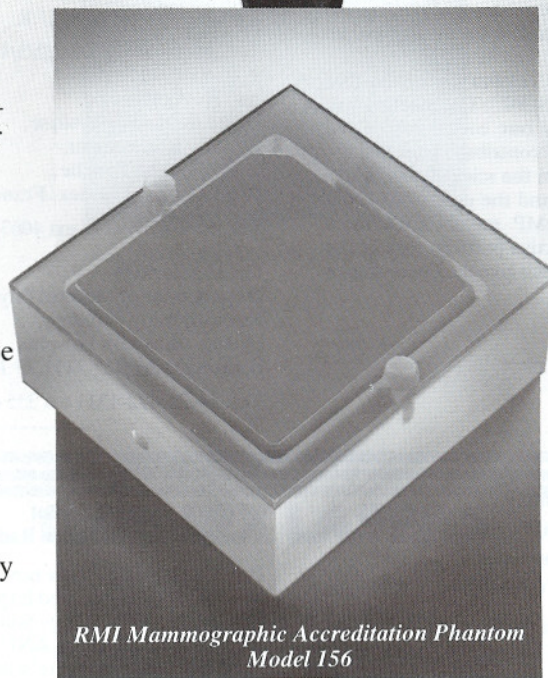
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Report from the Professional, Education and Training Committee

The committee met in Paris on 1st July 1989. The new membership regulations applied and fifteen members, representing national organisations, attended. The meeting was very constructive, leading to progress in several areas of work on the part of the core 'active group'.

One major area is the work done in collaboration with the E.C. concerning the medical physicist as a qualified expert in radiophysics and described in full in this issue. Another major piece of work has been the establishment of the mechanism for the EFOMP Travel Award. This has been successfully achieved and again the full details deserve a separate article in this issue.

Contact has been made with the E.C. to ensure that the education and training requirements for the qualified expert are consistent with the Directive on the recognition of Higher Education Diplomas. There will be further discussions concerning the mutual recognition of qualifications within the terms of the Directive.

The Committee has established that the document from the E.C. on Health Care Professions in the member states has no legal value. Medical Physics had not been included in the list but this matter should no longer be a concern for the profession.

The Paris EFOMP Council asked the Committee to prepare a document on criteria for the number of physicists in our departments. Work is in hand; there are a number of useful documents already available, for example those from I.P.S.M. relating to Radiotherapy and to Nuclear Medicine. The EFOMP document will cover the entire field of ionising radiation. If possible it will be printed in time for the Council Meeting in September.

H. Aget

The EFOMP Travel Award for Young Medical Physicists

The Award for 1990

At the Paris Council Meeting in 1989 arrangements for the EFOMP Travel Award were agreed. Awards will be made in 1990 and subsequent years, through the generosity of IGE/CGR-MeV. The Award is the product of the combined effort of the Professional, Education and Training Committee and the valued support of the commercial collaborator. Council was very appreciative of the contributory efforts.

The call for applications, which was issued following the Council Meeting, produced a good number of enquiries and the applications which followed involved eight of the Member Organisations. The awards committee decided to make one award, to Mr. Bohuslav Plesko, from the Radiotherapy Department, District Hospital, Ounz, Czechoslovakia. Mr. Plesko plans to visit the Institut Gustave Roussy, Paris, to study aspects of brachytherapy treatment planning. Also he plans to visit the United Kingdom; he will discuss conformation therapy at the Royal Marsden Hospital, Sutton and he will discuss the use of CT in radiotherapy at King's College Hospital, London.

The next deadline for receipt of applications is December 31st 1990. **It is not too early to begin the planning process!** Application forms can be obtained from Professor J. Richter, whose address is given on page 1. It is likely that the Awards Committee will be able to make two awards in 1991 and so they anticipate a good response. Full details about the conditions for award are given below.

The EFOMP Travel Award Conditions

Preamble The European Federation of Organisations for Medical Physics is anxious to promote the exchange of ideas between younger medical physicists working in different countries. Experience has shown that friendships established early in life frequently result in lasting and scientifically very profitable working and social relationships. It is hoped that many young medical physicists will wish to avail themselves of the opportunity to visit centres in other countries that this award provides.

Name The award will be called the EFOMP Travel Award and will be made annually.

Purpose To allow young medical physicists to gain experience of medical physics working arrangements in countries other than their own and to meet other young medical physicists.

Eligibility Applicants must be members of an EFOMP affiliated organisation. They must be under 35 years on the date of application and must have been working as a medical physicist in either a hospital, university or research institute engaged in similar work for a period of at least two years.

Conditions Each applicant must submit an itinerary detailing the departments he or she wishes to visit. The duration of the programme must be such as to include at least 10 working days (of which the first and the last days may be counted) and should involve visits to departments in other countries that are members of EFOMP. A curriculum vitae and brief case in support of the visit, indicating how it will assist the applicant's professional development, should be submitted together with letters of approval from the Heads of each of the Departments to be visited. Applicants must indicate that they have made suitable arrangements to be away from their place of work for the duration of the visit e.g. a letter from the Head of Department, annual leave, etc.

Applicants are strongly advised to ensure that their applications are brief and to the point.

Financial Arrangements The value of the award is intended to cover realistic travelling expenses and modest living expenses for approximately 12-14 days. The number of awards and the precise amount will be determined from year to year. The cost of the proposed programme will be taken into account when deciding the value of the award.

Application forms These will be available from the EFOMP Secretary-General.

Closing date Completed applications should be sent to the Honorary Secretary of the respective National Organisation. They will then be forwarded to the EFOMP Secretary-General and must be received by 31st December, each year. The visit may take place any time within the next 15 months.

The Award Committee will consist of:

- The President of EFOMP
- The EFOMP Secretary-General
- The Chairman of the EFOMP Scientific Committee
- The Chairman of the EFOMP Professional, Education and Training Committee
- The Chairman of the EFOMP Publications Committee

The Successful Applicant or Applicants will be notified by the end of February and their name will be published in European Medical Physics News.

The Recipient will be required to provide a report suitable for publication in European Medical Physics News.

Enquiry by the Commission of the European Communities into the 'Qualified Expert in Radiophysics'

On 3rd September 1984, the Council of the European Communities adopted the Directive 84/466/EURATOM laying down basic measures for the radiation protection of persons undergoing medical examinations or treatment.

Article 5 of the Directive states that a qualified expert in radiophysics shall be available to sophisticated departments of radiotherapy and nuclear medicine. As this is the first time that the need for such an expert has been stated, the Commission of the European Communities wished to check:

- 1) that suitably qualified medical physicists, expert in radiophysics, exist in the various member states
- 2) whether such experts are available in radiotherapy, nuclear medicine and diagnostic radiology
- 3) whether the basic education and training of the medical physicist in European countries is comparable, recognised by the competent national authority and consistent with the requirement of the proposal for the Directive of the Community on a general system for the recognition of higher education diplomas
- 4) what further education and in-service training is required for the medical physicist to be designated as a qualified expert.

The Institute for Radiation Hygiene (I.R.H.) of the Federal Health Office of the Federal Republic of Germany was commissioned to undertake the survey. Since EFOMP had already published Policy Statements on 'Medical Physics Education and Training': The present

European level and recommendations for its future development' and on 'Radiation Protection of the Patient in Europe: The training of the Medical Physicist as a Qualified Expert in Radiophysics', it was invited to assist with the survey. It is important to note that since all the National Organisations within the Community are affiliated to EFOMP, EFOMP is recognised by the Commission as speaking on behalf of the profession.

Three meetings have been held to date. At the first a Working Group comprising representatives of the I.R.H., EFOMP and the Commission drew up a survey form designed to elicit responses to the Commissions' queries. This questionnaire was sent to all EFOMP member organisations, both inside and outside the Community. The same Working Group met again to synthesise a report on the basis of the responses received.

The third meeting, to discuss the report, was held in October 1989 and was larger. Representatives of the I.R.H., EFOMP and the Commission were again present but were joined by representatives of all the National Medical Physics Organisations within the Community and by representatives of the Government Ministries responsible for implementing the Directive. Representatives of some National Medical Physics Organisations that are affiliated to EFOMP but are outside the Community attended as observers.

The minutes of the meeting, summary of the discussions and suggestions for future development are still in draft form but it is already clear that a number of important points will emerge. In particular:

- 1) Representatives of Governments accepted that, in most instances, the Qualified Expert in Radiophysics would be a suitably qualified and experienced medical radiation physicist as described in the EFOMP Policy Statement.
- 2) Since the collective dose equivalent in radiodiagnosis is high, this is also seen as an area that should be covered by the medical physicist within the concept of a 'Sophisticated Department'. The medical physicist should be available to give advice when sophisticated equipment capable of giving high doses is being used and their presence is also desirable in hospitals providing training.
- 3) The meeting suggested that it would be helpful if the E.C. requested EFOMP to draw up a list of all practical in-service training programmes for medical physicists that presently exist within the Community and outside.

- 4) Proposals should be drawn up listing the practical skills to be acquired during the training of the Qualified Expert in radiophysics, at the same time outlining methods for the assessment of those skills.
- 5) It was further proposed that a number of training centres should be identified and that Summer Schools should be arranged to cover more advanced aspects of the training of the Qualified Expert in Radiophysics.
- 6) Officers of EFOMP who were present agreed that the Federation, in conjunction with the Commission, would further develop its existing framework for education and training with a view to establishing mutual recognition of qualifications within the terms of the Directive. The EFOMP Professional, Education and Training Committee is now pursuing all these initiatives. A number of papers should be available for discussion prior to and at the Oxford meeting (Medical Physics '90). Preliminary arrangements to report progress to the Commission in October 1990 have already been made.

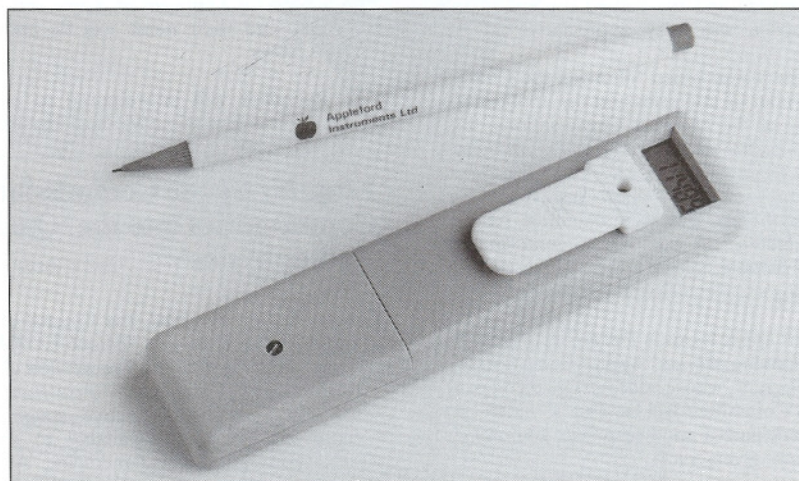
Although a lot of work remains to be done, EFOMP is currently in a position where it can have a profound influence on the manner in which the concept of the Qualified Expert in Radiophysics is implemented throughout Europe. It is important that we take the opportunity that has been presented.

P. P. Dendy

Clinical NMR Spectroscopy

The proceedings of the Clinical Spectroscopy Symposium, part of the 1987 European Workshop on Magnetic Resonance in Medicine, are now available. They are edited by J. Dykes and D. T. Delpy. There are 91 pages and the ISBN is 0 904181 57 X. The publication is a joint EFOMP/IPSM venture and is available at £14.70 including post and packing, from IPSM publications, PO Box 303, York YO12WR, U.K. Members of EFOMP organisations may obtain copies at a discount of 30%.

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The Greek Association of Medical Physicists (GAMP)

Medical Physics in Greece started in 1982 with the employment of a small number of physicists in hospitals to deal with work related to Radiotherapy with Cobalt-60 teletherapy machines and to *in-vivo* diagnostic and therapeutic applications of unsealed radioactive substances. The Greek Association of Medical Physicists was founded in 1969 by 22 physicists. Since then the number has increased considerably and today there are 85 Medical Physicists in our country. The vast majority work on the medical applications of Ionising Radiations in hospitals.

Training and education of Medical Radiation Physicists has been provided in the Nuclear Research Centre, 'Democritos', under the supervision of the Greek Atomic Energy Commission (G.A.E.C.). Courses were organised in 1961, 1963, 1968, 1973 and 1981 and a total of 56 physicists have graduated. The course in 1981 lasted for 18 months and included 467 lectures, 37 laboratory exercises and four months practical work in hospitals. Each student had also to prepare a dissertation, under the supervision of a Hospital Physicist. Another 25 Physicists have been educated in Medical Physics abroad, mainly in the U.K. and France, through appropriate M.Sc. or D.E.A. courses. Seven of our members have Ph.D. degrees from abroad, 2 are full professors of Medical Physics and 4 are assistant professors at the Faculty of Medicine at the Greek Universities.

In order that a Medical Radiation Physicist may be employed in a Hospital and assume responsibility, a Ministerial Act of 1978 requires that he must have the following:

- 1) A university degree in Physics
- 2) An M.Sc. degree or equivalent in Radiological Physics
- 3) One year of training in a hospital Department of Medical Physics
- 4) A certificate of competence, from the Ministry of Health and Social Security, obtained after written examination in the following fields: Physics of Radiotherapy, Physics of Nuclear Medicine, Physics of Diagnostic Radiology, and Radiation Protection, with emphasis on day to day hospital practice.

The Board of assessors consists of two Professors of Medical Physics, one Professor of Diagnostic Radiology, a representative from G.A.E.C., a representative from GAMP and a representative from the Ministry of Health.

Medical Radiation Physicists were involved in the 1970's in the preparation of the Greek Radiation Protection Regulations, which became effective in 1978. Two of our members, Mr. Tsialas from G.A.E.C. and Professor Proimos from St. Savvas Hospital at that time, have had a leading role on this work.

Through the above legislation, Radiotherapy and Nuclear Medicine Departments must be served by a Medical Radiation Physicist responsible for Radiation Protection, Dosimetry, Equipment Calibration and Quality Control. In Diagnostic Radiology, however, this is not compulsory and physicists are involved in this field only in hospitals where there are large Radiotherapy and Nuclear Medicine Departments. It is hoped that Quality Control will become compulsory for all Radiological Installations, through the EEC Directive 84/466 and through the proposals of GAMP to the G.A.E.C. This will increase considerably measurements related to image quality and radiation protection in Greece, which contains approximately 1000 diagnostic x-ray machines. Today there are 14 Medical Physics Departments which cover the workload of 17 Cobalt Units, 10 Accelerators, 10 Brachytherapy systems, 20 γ -cameras, 20 x-ray therapy Units and 20 linear scintiscanners. A number of Co-60 Units and γ -cameras also exist in private clinics and laboratories.

GAMP has been involved in several other professional and scientific matters such as:

- 1) The preparation of several reports, submitted to the Ministry of Health, concerning the importance, organisation and structure of Medical Physics Departments in Hospitals. As a result, a Presidential Act of 1986 now makes it possible that Physics Departments can be established in Hospitals as required. It is however unfortunate that such Departments are usually understaffed and that the only personnel they have are Medical Radiation Physicists.
- 2) The revision of the existing Radiation Protection Regulations, which was undertaken in 1985 by the G.A.E.C. Though a large number of Medical Physicists were involved in the early stages and the undersigned was one of the nine members of the Steering Committee, some important views of GAMP have not been reflected in the final draft. One important issue concerns the ambiguity of the term 'qualified expert' mentioned in the Directive 80/386.
- 3) The preparation and realisation of an appropriate course structure for the education and training of Medical Radiation Physicists in collaboration with the Radiation Department and the Institute for Radiation Physics, Nuclear Research Centre 'Democritos'. In 1987

our Association additionally proposed to the Education Committee, Ministry of Health, a period of three years (paid) Hospital Training, instead of one year mentioned before, but this matter has not been resolved yet.

4) The preparation of a report, submitted in 1988, to the Ministry of Health and G.A.E.C., about the implementation of a periodic Radiation Protection and Quality Control Program for Diagnostic Radiological Installations, both public and private. We have proposed that every diagnostic installation should be checked periodically for radiation protection and image quality by a medical Radiation Physicist, who will also prepare and submit a report to the Radiation Protection Department of G.A.E.C. Regional Medical Physics Departments should be established to undertake the above responsibility for all hospitals in their Region. Private Radiological Installations should be inspected either directly by G.A.E.C. or on a private basis by authorised Medical Radiation Physicists.

5) Responding to the Chernobyl incident in 1986 by informing the public through letters to the newspapers, giving lectures in hospitals, etc., about basic terms and physical quantities of interest and the possible implications of the incident on the Greek population. This work was based on preliminary measurements made in hospitals as well as those available from the G.A.E.C. and Bibliography.

6) The organisation of two conferences on Medical Physics and Biomedical Engineering, in cooperation with the Greek Society of Biomedical Engineering. These were held in 1984 and 1986. A seminar on Quality Control and Radiation Protection of Diagnostic Radiological Installations and Equipment was organised in Athens in 1987.

GAMP is a member of IOMP and EFOMP. We believe that both organisations have an important role in professional, scientific and educational matters and that they can strengthen the status of our profession.

S. Xenofos

Dose Prescription and Specification in External Radiotherapy

The I.C.R. '89 satellite meeting in Lyon

I.C.R.U. report No. 29, published in 1978, presents definitions for concepts frequently used in radiotherapy and gives recommendations as to how to describe a treatment and report the delivered dose. Unfortunately, even in 1990, these recommendations are not widely used. When doses are reported in oral communications or in papers there are still discrepancies in their point of specification and significance.

In Lyon, with the help of members of the I.C.R.U. and of S.F.P.H., we organised a symposium to try to clarify these topics. To prepare for this meeting a questionnaire was sent to 850 institutions throughout the world and we received 171 replies. We invited 17 experts to analyse the results.

The first part of the questionnaire was concerned with the definition of various volumes (e.g. tumour volume and target volume). Even at this stage we observed that these fundamental concepts do not have the same significance for everyone. We observed similar problems concerning the definition of admissible inhomogeneity through the target volume. However, during the meeting and after some very interesting discussions, it was possible to reach some consensus on these problems.

The last part of the questionnaire tried to assess the problems of dose prescription, dose reporting and dose specification, through examples frequently encountered in routine work. These concepts were discussed vigorously in the meeting and it was difficult to come to an agreement mainly because of confusion between the concept of prescribed dose and the dose for reporting and specification.

On the other hand it was interesting that all the participants agreed on the different steps, sometimes interactive, of radiation treatment preparation. Such treatments start with the radiation oncologist's decision to treat; implying a precise knowledge of the target volume and the prescribed dose.

We established that only half of the responding institutions use I.C.R.U. report No. 29 routinely. Considerable effort is now required to link the notion of prescribed dose to the reported or specified dose in a simple, uniform and reproducible way. This will be the subject of a forthcoming I.C.R.U. report.

A fuller paper reporting on this interesting meeting will shortly be submitted to 'Le Bulletin du Cancer'.

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Polish Annual Meeting, 1989

The Polish Society for Medical Physics held its 8th Congress and General Assembly meeting in Poznań on 20-22 September, 1989. The Society has recently grown to 391 members in 10 regional organisations. There are 185 physicists, 116 engineers and 29 physicians and other specialists, such as chemists and biologists. Most members are in the age range from 29 to 48 years and about half are employed in institutions of higher education connected with medicine.

Over 120 participants took part in the Congress. Some 50 posters were presented, their topics ranged from bio-physical studies on cell metabolism, through radiation therapy to imaging techniques. A considerable amount of time at the Congress was devoted to the problems faced by Poland's two largest universities in teaching physics to physicians and in educating medical physicists. A short panel discussion on the education of medical physicists was also organised.

Among the invited speakers from abroad, Professor L. H. Lanzl (U.S.A.) presented a paper on 'The Physics of Radiotherapy, Recent Advances' and Dr. B. Stedeford (U.K.) gave a paper on 'Education of Medical Physicists: a world perspective'.

The participants were taken on an interesting sight-seeing visit to the well known Manor House 'Kórnik' in the vicinity of Poznań.

O. A. Chomicki

Protocols in Medical Physics

The EFOMP Scientific Committee has begun the task of collecting details on the protocols which member organisations use. The Committee has defined six areas to be used in the collation of the protocols. Jürgen Rassou, from Essen, F.R.G., has prepared a list of the protocols used in his country. A seventh area, 'terminology' has been added and the list was completed in October 1988. The list of subject areas is:

- 1 Diagnostic QA
 - Nuclear Medicine
 - Radiodiagnosis
 - Ultrasound
 - Magnetic Resonance
- 2 Radiotherapy QA
 - Brachytherapy
 - Hyperthermia
 - Treatment Planning Systems
- 3 Dosimetry, including QA of dosimeters
 - High energy
 - Electrons
 - Neutrons
 - Low energy x-rays
- 4 Non-ionising Radiation dosimetry
 - Ultraviolet
 - Lasers
 - Ultrasound
- 5 Equipment Safety
 - Electromedical Aspects
 - Mechanical Aspects
 - Radiation Aspects
- 6 Radiation Protection in Hospitals
 - Equipment
 - Procedures
- 7 Terminology — Radiation Physics
 - Dosimetry
 - Radioactivity
 - Radiation Protection
 - X-ray Diagnostics
 - Radiation Therapy
 - Nuclear Medicine

The list of protocols gives an accession number, the category code, with reference to the above table, the protocol reference and an English translation of the title. The protocol references refer to the following sources:

DGMP-Bericht — Reports of the German Association for Medical Physics. These are available from Dipl.-Ing Dietlof Puppe, Auguste-Viktoria-Krankenhaus, Strahlenabteilung, Rubenstraße 125, D1000, Berlin 41, F.R.G.

DIN Norm volumes — Standards of the Standards Committee for Radiology in the Deutschem Institut für Normung. These may be obtained from Beuth Verlag GmbH, Burggrafenstraße 6, D1000, Berlin 30, F.R.G.

Professor Clifton will be pleased to receive similar lists from other member organisations.

- | No | Area | Reference |
|----|------|---|
| 1 | 1 | DGMP-Bericht No 3 Jan 1985
A proposed performance test of x-ray radiographic equipment for quality assurance in diagnostic radiology |
| 2 | 1 | DGMP-Bericht No 4 Feb 1987
A proposed performance text of x-ray fluoroscopic equipment for quality assurance in diagnostic radiology |
| 3 | 1 | DGMP-Bericht No 6 1988 (Draft)
Determination of absorbed dose in the embryo and the fetus from medical application of radiation |
| 4 | 2 | DGMP-Bericht No 1 1981
Principles of treatment planning with computers |
| 5 | 2 | DGMP-Bericht No 2 1982 (Draft)
Tabulation of radial fluence distributions in scattered electron beams of circular cross-section |
| 6 | 3 | DGMP-Bericht No 5 1986
Practice of dosimetry for low energy x-rays
DIN 6823 X-ray tube assemblies for medical use |
| 7 | 1 | Vol 1 Jul 1983
— determination of the intensity distribution of focal spots of diagnostic x-ray tube assemblies using a pinhole camera |
| 8 | 1 | Vol 2 Jul 1983
— determination of the dimensions of focal spots of diagnostic x-ray tube assemblies using a slit camera |
| 9 | 1 | Vol 3 Jul 1983
— determination of the MTF of the intensity distribution in the effective focal spot
DIN 6825 X-ray image intensifiers |
| 10 | 1 | Vol 1 Oct 1972
— measurement of conversion factor of electron-optical x-ray image intensifiers and of x-ray image intensifier tubes |
| 11 | 1 | Vol 2 Jul 1976
— entrance diameter of electron-optical x-ray image intensifiers and x-ray image intensifier tubes |
| 12 | 1 | Vol 3 Jul 1976
— determination of the luminance distribution of electron-optical x-ray image intensifiers and x-ray image intensifier tubes |
| 13 | 1 | Vol 4 Sept 1978
— evaluation of the distortion of electron-optical x-ray image intensifiers and x-ray image intensifier tubes |
| 14 | 1 | Vol 5 Sept 1985
— determination of the MTF of electron-optical x-ray image intensifiers and x-ray image intensifier tubes
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| 15 | 1 | Vol 1 Sep 1980
— characteristics |
| 16 | 1 | Vol 2 Dec 1986
— characteristics of grids for mammography and soft tissue radiography
DIN 6830 Medical x-ray films used with intensifying screens |
| 17 | 1 | Vol 1 Dec 1975
— sensitometric simulation of the fluorescent radiation of calcium tungstate intensifying screens |

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		— determination of speed, average gradient and fog			— ferrous sulphate dosimetry				
		DIN 6831 Films and intensifying screens for medical radiography	45	3	Vol 4 Jun 1980				
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		DIN 6832 Radiographic cassettes			— photoluminescence dosimetry				
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		DIN 6867 Image recording system consisting of a radiographic film, intensifying screens and a film cassette for use in medical diagnostics	55	3	DIN 6817 Oct 1984		Dosimeters with ionising chambers for photon and electron radiation in radiotherapy; rules for manufacture		
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		— general							— non-direct reading ionisation chamber pocket dosimeters for gamma- and x-rays
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		DIN 6847 Medical Electron Accelerators							— requirements for the manufacture of equipment
40	2	Vol 4 (Draft) Sep 1986 (Std. in press)					69	5	Vol 2 Apr 1973
		— functional performance characteristics							— requirements for the installation
41	2	Vol 5 (Draft) Sep 1986 (Std. in press)							
		— constancy testing (suggests a set of periodic test methods and test conditions)							
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42	3	Vol 1 Jun 1980							
		— principles of photon and electron dosimetry with probe type detectors							
43	3	Vol 2 Jun 1980 (in revision)							
		— ionisation dosimetry							

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		— dimensions, connections and marking for three-pole type	DIN 6844	Installations for nuclear medicine	
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		— therapeutic application			— dose quantities for radiation protection
84	6	DIN 6812 May 1985	110	7	Vol 4 Mar 1980
		Medical x-ray equipment up to 300kV; radiation protection rules for installation			— radioactivity
85	6	DIN 6813 Jul 1980	111	7	Vol 5 Nov 1983
		Radiation protection accessories for medical use of x-rays up to 300kV; rules for manufacture and use			— radiation protection
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94	6	DIN 6839 Sep 1977	121	7	Vol 25 (Draft) Oct 1988
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95	6	DIN 6841 May 1979	122	7	Supplement 1 (Draft) Jan 1987
		X-ray radiation protection; panes of lead glass			— key-word index (to DIN 6814)
			123	7	DIN manuscript First edition 1986
					Dictionary of physical-technical terms of the field of medical radiology French — English — German Translation of IEC Publication 788 to German (with reference to compatible terms of DIN 6814)

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XXIX Congrès S.F.P.H. — Quality Control in Medical Imaging and applications to Radiotherapy
7-9 June, 1990, Lille, France
Secrétariat XXIX Congrès S.F.P.F. Service de Radiophysique, 69 rue de la Louvière, 59000 Lille, FRANCE

Osteoporosis and bone mineral measurement
25-27 June, Bath, U.K.
The Osteoporosis Conference Organiser, The National Osteoporosis Society, P.O. Box 10, Radstock, Bath BA3 3YB, U.K.

European Society of Biomechanics — 7th meeting
8-11 July, Aarhus, Denmark
Dr. I. Hvid, Biomechanics Laboratory, The Orthopaedic Hospital, Randersvej 1, DK 8200, Aarhus N, DENMARK.

9th International Conference on Medical Informatics — Europe (MIE) '90
20-23 August, 1990, Glasgow, U.K.
MIE Secretariat, Meeting Makers, 50, Richmond Street, Glasgow G1 1XP, U.K.

ESTRO Teaching Course: Quality Control Procedures in Radiotherapy Departments
9-11 September, 1990, Firenze, Italy
and
ESTRO: 9th Annual Meeting
12-15 September, 1990, Montecatini, Italy
and
ECCO 6/ESTRO 10
27-31 October, 1991, Firenze, Italy
ESTRO Secretariat, University Hospital St. Rafael, Department of Radiotherapy, Capucijnenvoer 35, B-3000, Leuven, BELGIUM.

1st International Conference on Ultrasound Angiography
25-28 September, 1990, London, U.K.
The Conference Secretariat, P.O. Box 15, Eastleigh, Hampshire, SO5 5XG, U.K.

10th International Conference on the use of Computers in Radiotherapy
11-14 November, 1990, Lucknow, India
Dr. S. Hukke, Department of Radiotherapy, Sanjay Gandhi PGI, Rai Bareli Road, P.O. Box 375, Lucknow 226001, INDIA.

Biomedical Engineering '90
19-22 November, 1990, Antwerp, Belgium
Conference Office, Technologisch Instituut-K, VIV, Desguinlei 214, B-2018, Antwerp, BELGIUM.

4th International Conference on Fetal and Neonatal Physiological Measurement
12-15 May, 1991, Rotterdam, The Netherlands
Hoboken Congress Organisation, Erasmus University, Rotterdam, PO Box 1738, 3000 Rotterdam, THE NETHERLANDS

9th International Congress of Medical Physics (IOMP)
7-12 July, 1991, Kyoto, Japan.
Dr. C. G. Orton, Secretary General, IOMP, Gershonson Radiation Oncology Centre, Harper-Grace Hospitals, 3990 John R. Street, Detroit, Michigan 48201, USA.

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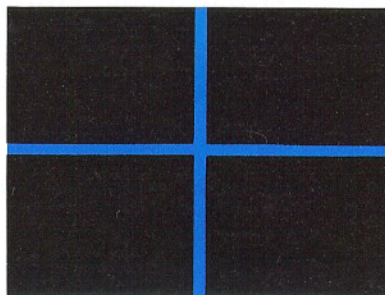
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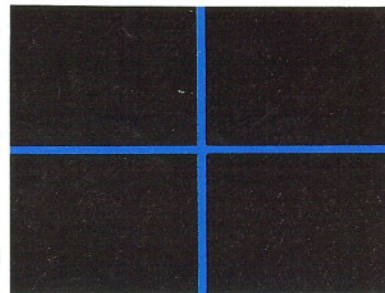
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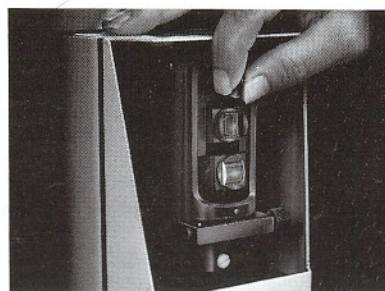
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