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Various Anniversaries of European Medical Physics Education and e-Learning in 2024

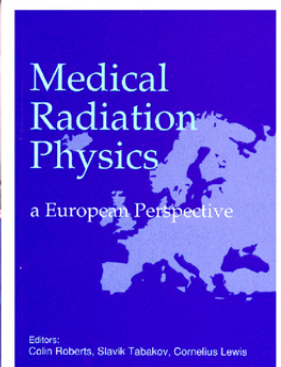
2024 marks several anniversaries associated with important moments of medical physics education and e-learning in Europe.

Slavik Tabakov reports.

The first one is related to the professional links between West and East European Societies of Medical Physics. The democratic changes in Eastern Europe during 1989 are undoubtedly some of the milestones of 20th-century history. During the 1990s, colleagues from East and West Europe continued the collaboration, which had been dormant for many years. One of the fields of cooperation was related to the harmonisation of education and training in all professions, leading to the future expansion of the European Union (EU). One important moment for medical physics was to expand EFOMP into Eastern Europe and to agree with the new members on the standards of medical physics education (already presented in the EFOMP Policy Statements). As a result, the first European Conference on Post-graduate Education in Medical Radiation Physics was organised in Budapest in 1994 (Figure 1). The Conference was supported by the European Commission project CIPA 2623.

The delegates to the Conference were from 37 Institutions, Societies and Universities in 23 European countries. The photo from this Conference presents most of the delegates (many of them - Presidents of National Medical Physics Societies - Figure 1) The materials of this Conference were

published in a book, which was distributed free to all countries and provided further practical guidance for creating new MSc programmes in Eastern Europe [1]. Also, this Conference linked EFOMP and the newly formed European Scientific Institute in Archamps, which later became one of the main EFOMP Schools.



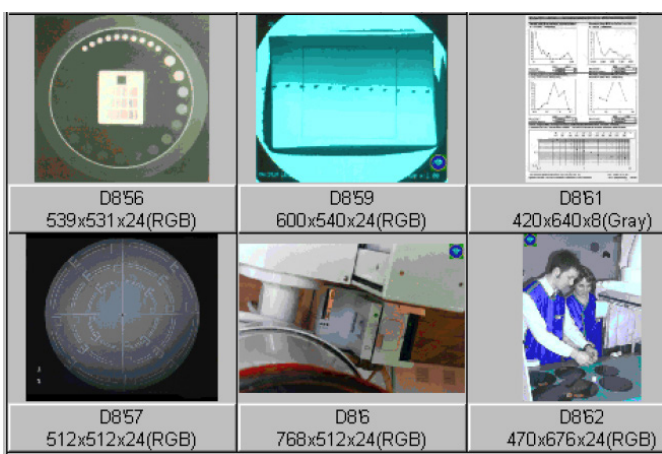
Some of the delegates to the European Conference on Post-graduate Education in Medical Radiation Physics, Budapest, 12-14 November 1994; Book following the Conference in Budapest 1994

Several international projects started after this Conference. The author developed European projects, creating MSc programmes in Bulgaria,

Latvia, Lithuania and Estonia [2]. These activities were later expanded as support for the development of MSc programmes in a further 15 countries. Most importantly, in Budapest, a European team was formed aiming to develop electronic teaching and training materials for medical physicists (at that time, the term e-learning did not exist yet). The new EU pilot project EMERALD (standing for “European Medical Radiation Learning Development”) included eminent colleagues from the UK, Sweden, Italy, Portugal, and ICTP. The project developed its concepts for e-learning, including the first Educational Image Databases in the profession [3, 4]. The CD-ROM created by the project was the second in the world CD-ROM with ISBN number as a book [5] – Figure 2.

The project EMERALD expanded into a new project, EMERALD II, which included additional partners from France, Ireland, and the Czech Republic. Its main aim was to disseminate in Europe the created by the team e-learning materials. As part of these activities, the project developed the first Educational Website in the profession, www.emerald2.eu. This website has been active from 1999 to the present day and although it now needs updating, parts of it still attract over 2000 students and trainees per month [5].

Educational Image Database CD-ROM



While EMERALD created e-learning in Diagnostic Radiology, Nuclear Medicine and Radiotherapy, it



Worlds Top-3 ISBN-numbered e-Learning materials:

1. Atlas of Pathology: Urological Pathology CD-ROM, 30 Dec 1997, Springer-Verlag, ISBN 3540146571
2. EMERALD Image Database, Training Courses in Medical Radiation Physics CD-ROM, 19 Feb 1998, King's College London, ISBN 1870722035
3. Developmental Psychology Image Database CD-ROM, 30 April 1998, McGraw-Hill, ISBN 0072896914

EMERALD Image Database – one of world's first 3 CD ROM with ISBN Number; all 5 CD ROMS with Image Databases

(now over 3500 images included in the web site

<http://www.emerald2.eu/cd/Emerald2/>)

was necessary to have additional materials covering Ultrasound and Magnetic Resonance Imaging. Thus, the author led the development of a new European project – EMIT (standing for “European Medical Imaging Technology Training”). The team of the project EMIT used the experience from the previous project (related to its databases, images, and website), and soon the new e-learning material was ready – which was unique at the time. To disseminate it further, the project team developed

an electronic Dictionary of Medical Physics Terms, initially covering only some of the European languages: English, French, German, Italian, and Swedish. This was the first international dictionary in the profession. A conference was organised at ICTP, Trieste (November 2003), aiming to lay the foundations for further use of e-learning in the profession. This was the First International Conference on e-Learning in Medical Physics and it attracted not only experts from 26 European countries but also from the USA and Asia.

All projects summarised so far were supported by EFOMP, but EMIT was the first project to include EFOMP as a full project partner [6]. This brought significant income to the Federation and triggered the need for EFOMP incorporation to allow easy participation in various other EU projects.

The success of Project EMIT was seen as an e-learning showcase for the EU. The project was shortlisted (out of over 500 other educational projects) and in December 2004, the project EMIT was awarded the inaugural European Award for Vocational Education, the Leonardo da Vinci Award. This was the second anniversary discussed in this paper (Figure. 3). This milestone of e-learning in the profession triggered various other projects in medical physics, where professionals usually have excellent IT skills. The strong e-learning activities in the profession were of great help during the pandemic period 2020-21 [7].



The official EU Leonardo da Vinci Award Diploma, listing all partners of the EMIT project (including EFOMP)

The following decade 2004-2014 was associated with the largest project of the profession – the European project EMITEL, which developed the first e-Encyclopaedia of Medical Physics. The project was constantly expanding and, in the end, included 114 members from 24 countries. The result was a free online Encyclopaedia, used by over 5,000 medical physicists per month. Additionally, the website of the e-Encyclopaedia (www.emitel2.eu) included an e-Dictionary [8], which expanded significantly outside Europe and currently cross-translated medical physics terms between its 32 languages (over 200 medical physicists were initially working on the translation of the Dictionary in various languages). As part of the EMITEL project, another large International Conference was organised (October 2008, ICTP, Italy). It included past, current and future Presidents of 26 National Medical Physics Societies (most from Europe) (Figure 4).

The current 32 languages in the Scientific e-Dictionary are Arabic, Bengal, Bulgarian, Chinese, Croatian, Czech, English, Estonian, Finnish, French, Georgian, German, Greek, Hungarian, Italian, Japanese, Korean, Latvian, Lithuanian, Malaysian, Persian, Polish, Portuguese, Romanian, Russian, Slovenian, Spanish, Swedish, Thai, Turkish, Ukrainian, and Vietnamese. The web design of the e-Dictionary and e-Encyclopaedia sites was made by M. Stoeva and A. Cvetkov and the 32 teams of translators expanded to over 300 colleagues.



Delegates to the Medical Physics Encyclopaedia Conference, 23-26 October 2008, ICTP, Italy

After the official end of the EMITEL European project, the coordinator and a team of Editors continued working on the paper print of the Encyclopaedia

with CRC Press (Taylor and Francis). The two-volume Encyclopaedia was published in 2014, which was the third anniversary discussed in this material [9].

Following this, the author published in 2014 a free e-book about these projects [10], aiming primarily to be a souvenir and a token of gratitude to all colleagues who took part in these milestone pilot projects. To our surprise, the book has over 40,000 downloads, probably due to the included elements of the methodology of creating e-learning materials, educational image databases, and online encyclopaedia and dictionary.

It was by coincidence that 2024 is the 30th Anniversary of the first International Conference of Medical Physics Education, Budapest, 1994; the 20th Anniversary since the Leonardo da Vinci Award for pioneering e-learning projects in the profession; and the 10th Anniversary of the publication of the Encyclopaedia of Medical Physics. During the time after 2014, the core members of the existing Encyclopaedia team plus another 52 new contributors developed the second updated edition of the Encyclopaedia, which was published by CRC Press in 2022 [11].

Other significant Education and e-Learning activities are planned for 2024. In a recent conversation with EFOMP Education and Training Committee Chair Dr Veronica Rossetti, it was clear that it is expected that EFOMP to launch its new e-learning platform in 2024. Also, the Multilingual Dictionary of Medical Physics Terms will be published this year as a separate e-book. I am sure these activities will be subject to additional materials.

In conclusion, after starting a sequence of European projects in 1994 with a handful of enthusiasts from the UK, Sweden, Italy, Portugal, Ireland, and Bulgaria, we could not even dream that 30 years later our huge project EMITEL would attract some 320 specialists from 36 countries. The fantastic collaboration, mainly of colleagues from Europe (and supported financially by the EU and

other European Universities and Institutions, as well as IOMP and its member societies), created a melting pot of ideas, hard work, and dedication, which now form part of the foundation of medical physics education not only in Europe but also in many other countries worldwide.

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