

THE UPDATE OF THE SCIENTIFIC DICTIONARY OF MEDICAL PHYSICS

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Abstract

The paper describes the update of the Scientific Dictionary of Medical Physics with 25% more terms, including new fields (Non-Ionising radiation safety and Clinical Engineering) and increased number of languages (now 32 languages in 11 alphabets). This Dictionary is now a very important part of the educational process in Low and Middle Income (LMI) countries with thousands of users per month. The paper gratefully acknowledges the contribution of over 250 senior colleagues, forming the international network of the Dictionary.

INTRODUCTION

The Scientific Dictionary of Medical Physics is online from 2005 and was merged with the e-Encyclopaedia of Medical Physics in 2010 (at www.emitel2.eu). In previous publications [1,2] we described the first steps of this huge project - the Thesaurus of the Dictionary; the need for it, especially in Low and Middle Income (LMI) countries; our original methodology for Dictionary development, which was further updated for the development of the e-Encyclopaedia; the use of the Dictionary and its place in the process of global development of medical physics.

Here we describe briefly the process and content of the recent significant update of this Scientific Dictionary, and list all colleagues who took part voluntarily in this huge project. The update consists of both inclusion of more languages in the Dictionary (now 32 languages in 11 alphabets), and the update of its Thesaurus with terms from additional fields related to medical physics.

I. THE UPDATE OF THE THESAURUS OF THE SCIENTIFIC DICTIONARY OF MEDICAL PHYSICS TERMS

The initial thesaurus of the Scientific Dictionary was developed as part of our project EMIT (2001-2003) and was released during WC2003 in Sidney, Australia. This thesaurus included terms from the main fields of our profession - Physics of: X-ray Diagnostic radiology, Nuclear Medicine, Radiotherapy, Ultrasound Imaging, Magnetic Resonance Imaging, Radiation Safety [2].

As part of the e-Encyclopaedia project EMITEL, the thesaurus was updated in 2008 with new terms related to new equipment and methods in these fields. This updated Scientific Dictionary was e-published in 2010 on the website www.emitel2.eu (together with the e-Encyclopaedia).

During the following years it was evident that the future updates of the Thesaurus will have to include, additionally to the main fields, the field of Non-ionising radiation safety.

The current activities of the IUPESM, related to collaboration of medical physicists and engineers, revealed additionally that including terms from the field of Clinical Engineering will benefit many colleagues from LMI countries, as there they often take part in Clinical engineering activities.

The update of the Thesaurus included mainly the Editorial Team of the Encyclopaedia of Medical Physics (S Tabakov, F Milano, P Sprawls, M Stoeva, S Tipnis, T Underwood) plus F Fedele, E Chaloner, L Pecchia, E Iadanza, P Bregant, K Ng, J Oshinski, A De Stefano, R Longo, J Thurston, E Bezak.

During the process of update some older terms were consolidated with newer ones and 650 new terms were added. Some of these terms are complex (e.g. Laser classification, Laser output mode, Laser protective eyewear, etc). We continued to include common abbreviations of methods, organisations, classifications, etc., hyperlinked with the original term. This way the Thesaurus of the Scientific Dictionary reached almost 4000 terms, what is normal for a dynamic scientific field such as medical physics. In order to facilitate the parallel update of the e-Encyclopaedia of Medical Physics (to be released around the end of 2021) all previously existing Dictionary Identification numbers (ID) were preserved and new IDs were assigned to the new terms.

II. NEW LANGUAGES OF THE SCIENTIFIC DICTIONARY

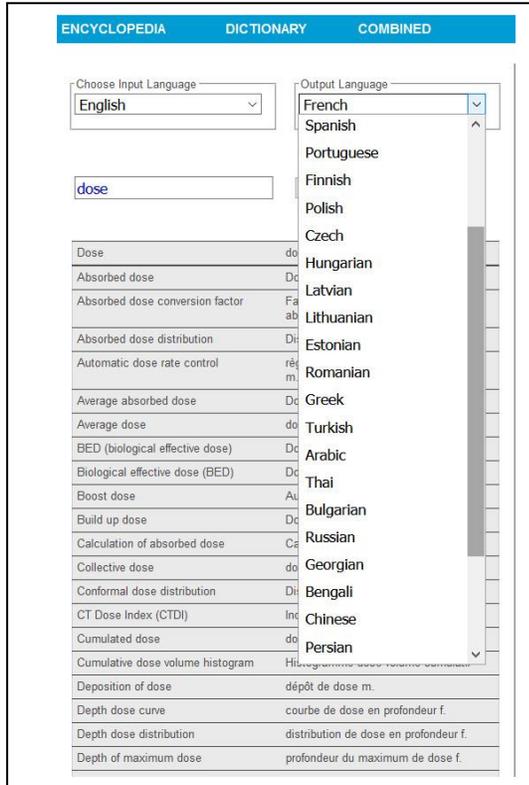
After the online launch of the e-Dictionary in 2010, five more language were included in it: Finnish, Korean, Georgian, Ukrainian and Vietnamese. Also the existing teams of specialists were joined by additional colleagues for the update of the Dictionary (listed in Part III of this paper). Some of those colleagues are associates and attendees of the College on Medical Physics in ICTP, Trieste, Italy.

The development of this huge project took over 20 years. The team of senior colleagues who contributed to the update of the Dictionary included most of the previous members, but some retired and unfortunately some are no longer with us. Additionally new members were included in the Dictionary Network and we hope this will continue in future.

The software of the Website of the Dictionary [3] was also updated by M Stoeva and A Cvetkov to allow faster search with handling of complex terms with many words. All this process was going in parallel with the update of the Encyclopaedia of Medical Physics (to be described in a further paper this year). The Dictionary translates not only from and to English, but between any two of its 32 languages.

The use of the Scientific Dictionary is the same as before

The use of the Dictionary is illustrated on Fig.1 below (English to French) - only part of the images are displayed.



The combined use of the Scientific Dictionary and the Encyclopaedia of Medical Physics is shown on Fig.2 below:

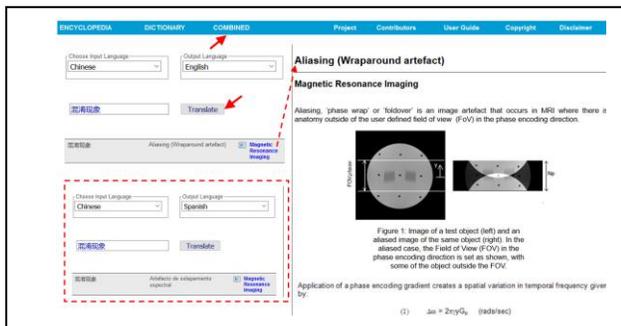


Fig.2 Combined mode (Dictionary+Encyclopaedia): the term *Aliasing* has been included in the local language (e.g. Chinese) and the term entry is displayed in English. Additionally the term name can be translated to any Dictionary language (in the box: second example with translation in Spanish). The term text is displayed in English.

One important moment is that all specialists who took part in the translation of the terms in the Scientific Dictionary contributed voluntarily this activity aiming to support the global development of medical physics. As I developed and coordinated all phases of the Scientific Dictionary plus the Encyclopaedia of Medical Physics, and invited personally most of these colleagues, I am truly grateful to each one.

III. DICTIONARY CONTRIBUTORS

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The current 32 languages in the Scientific 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 website www.emitel2.eu (and www.emitel2.net) includes the Multilingual Scientific Dictionary of Medical Physics Terms and the e-Encyclopaedia of Medical Physics.

IV. REFERENCES

- [1] Tabakov S, Tabakova V, Stoeva M, Cvetkov A, Milano F, Strand S-E, Giraud J-Y, Lewis C, Medical Physics Thesaurus and International Dictionary, Journal Medical Physics International, 2013, v.2, p 139-144 (available free from www.mpijournal.org/pdf/2013-02/MPI-2013-02-p139.pdf)
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- [3] Stoeva M, Cvetkov A, Tabakov S, (2009), Web site Development for EMITEL e-Encyclopaedia and Multilingual Dictionary, World Congress on Medical Physics and Biomedical Engineering, IFMBE Proceedings, vol. 25, p 255-256

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