

## 10<sup>th</sup> Anniversary of the IOMP Journal *Medical Physics International*

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**Abstract:** The paper briefly describes the history of the Journal Medical Physics International (MPI) – the Journal of the International Organization for Medical Physics (IOMP), highlighting the milestones in its development and achievements in support of the global advancement of the medical physics profession.

**Keywords** – *Medical Physics International Journal, Medical Physics Education, Medical Physics history.*

### I. THE BEGINNING OF THE MPI JOURNAL

The history of the IOMP journal Medical Physics International (MPI) began in July 2012. The establishment of the MPI journal was initiated by Slavik Tabakov (at that time IOMP Vice-President) due to the necessity of a Journal to address e-learning in medical physics. This new type of education includes a number of applications with short life-cycles, hence a quick exchange of information about their application is essential. E-learning had already found a steady place in the profession, on one side - encouraged by the pioneering of e-learning in the profession and related EU Leonardo da Vinci Award; on another side supported by the excellent IT skills in the profession.

The IOMP ExCom and the then President KY Cheung strongly supported the establishment of this Journal. The renowned medical physics educationalist Perry Sprawls was invited, together with Slavik Tabakov, as Co-Editors in Chief of the new Journal, with the IOMP ExCom members supporting them as members of the Editorial Board. At that stage it was decided that the journal would not only cover e-learning and education, but also other professional issues in medical physics. The sharing of expertise on these topics would support the global development of medical physics. A distinguishing feature of the journal MPI was it does not publish peer-reviewed research reports as this is provided by the many other medical physics journals.

It was decided that the MPI journal will be free for all IOMP members and will be developed as an online e-Journal with normally 2 issues per year. The name of the Journal *Medical Physics International* was suggested by the then Chair of the IOMP Science Committee William Hendee.

During the summer of 2012 several activities started in parallel:

-The application and approval of the ISSN number (International Standard Serial Number) necessary for serial publications;

-The discussions with the other research-orientated medical physics journals, agreeing that MPI will complement their activities by covering predominantly topics related to education and professional issues and sharing of practical information.

-The development of a dedicated web site for the MPI Journal (an activity led by Magdalena Stoeva, then Associate Editor of the IOMP Newsletter *Medical Physics World*), plus securing a domain for the journal, agreed as: [www.mpjournal.org](http://www.mpjournal.org)

These activities were completed by the end of 2012 and the first issue of the Journal was prepared for the Spring of 2013 – in line with the celebrations of the Golden 50<sup>th</sup> Jubilee of IOMP during 2013 [1].

### II. FIRST ISSUES AND SUCCESSES OF THE MPI JOURNAL

From its first issue MPI Journal became a very well accepted platform in the profession and although there were 2 issues per year, the monthly visitors of the web site were around 5000, sometimes up to 10,000 [2].

Gradually the Journal included more topics for sharing experience (some practical test objects or clinical procedures, which simplify the everyday tasks of medical physicists, etc.). Other topics were included, related to clinical practice – e.g. sharing experience with the industry of relevant medical equipment about its clinical use [3].

The papers related to e-learning and education had a significant number of readers and included lectures on specific topics which can be shared as free resources between the educators in the profession.

The medical physics profession already had a double growth in the decade 1995-2005 (4000 new medical physicists per decade, compared with the flat 2000 physicists per decade growth for 1965-1975, 1975-1985, 1985-1995). The decade 2005-2015 doubled the growth from 1995-2005, reaching 8000 per decade [4]. This trend continues and the current growth is expected to double again by 2025. Both the introduction of e-learning in the profession and the emphasis on education, supported by the MPI Journal, were significant drivers for this growth.

Fig.1 shows the online visits of the MPI web site at various periods in the past 10 years.



Fig.1 a. Number of MPI website visitors (per month) during the first 3 years of MPI (2013-2015) – *official website statistics*



Fig.1.b. Distribution of MPI website visitors per continent for a period of 9 months: Sep 2017 to April 2018 (this period covers the time around one issue (starting after one issue has been published in June 2017, a second Issue has been published in Dec 2017 and before the third issue has been issued in May 2018) – *official website statistics*

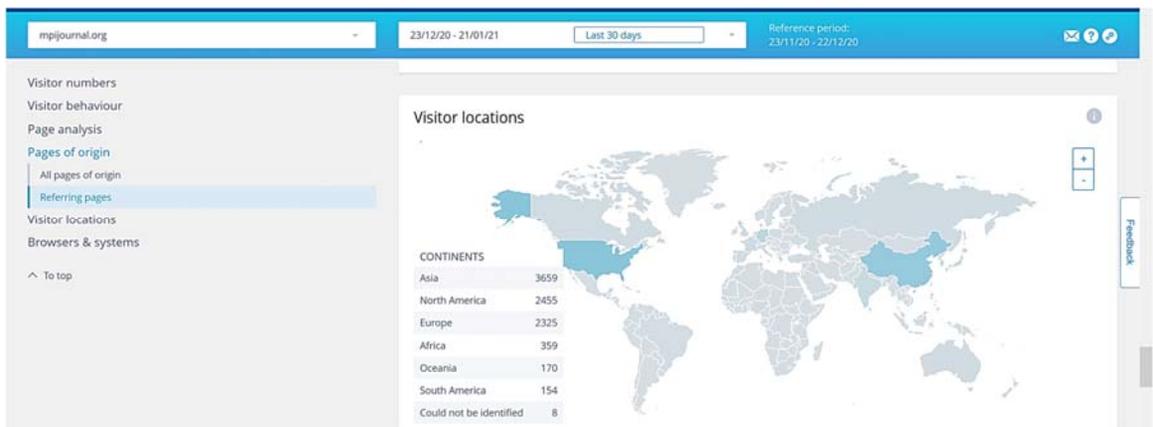


Fig.1.c. Distribution of MPI website visitors per continent for a period of 1 month: mid Dec 2020 to mid Jan 2021 (when a new MPI Journal was issued) - *official website statistics*.

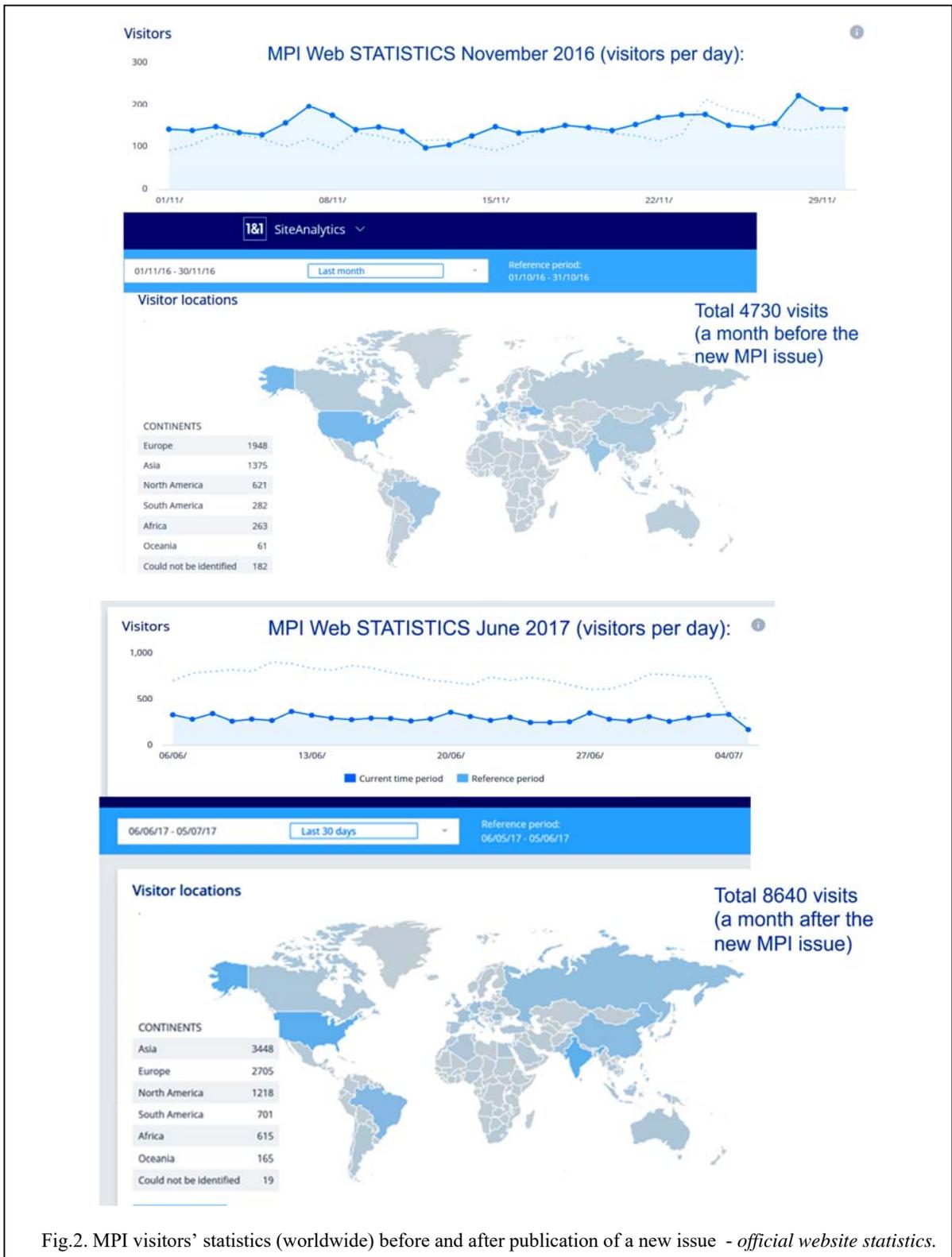


Fig.1 presents the official server statistic for the period between 2013 and 2021. Fig.1.a presents the visitors per month, while Fig.1.b, c - the geographical spread of MPI readers.

Fig.2 shows the MPI website visitors per day - one month before a new issue and one month immediately after a new issue has been published.

All papers in MPI are free to download. Some of these have thousands of downloads, and 6 papers have over 10,000 downloads.

### III. MPI CONTENT DEVELOPMENT

Over time the content of MPI was enriched with various publications by colleagues from over 70 countries. Some abstracts of PhD theses were also published, thus monitoring the level of development in various countries.

From 2015 MPI began publishing specific papers about free educational resources, especially from the rich library of the AAPM (an activity led by P Sprawls). This was very useful for the colleagues from LMI countries.

From 2018 MPI started working with the IOMP Regional Organisations to collect information about the professional development from almost all National Members Organisations. This activity was led by S Tabakov, together with the Presidents and Secretaries General of all 6 RO. The volumes included information from 65 countries, distributed as follows:

- in Latin America (ALFIM) from 2019 [5];
- in Africa (FAMPO) from 2019 [6];
- in South-East Asia (SEAFOMP) from 2020 [7];
- in Asia and Oceania (AFOMP) from 2020 [8];
- in the Middle East (MEFOMP) from 2021 [9];
- in Europe (EFOMP) from 2021 [10].

From its first volume to the current volume 10, MPI has published 331 papers on education, professional developments, new resources and books, etc. These papers are about 1600 pages.

In addition to these papers MPI published various documents and guides from organizations (as IAEA), large international activities and MSc abstracts of the ICTP-University of Trieste international MSc programme with students from Low-and-Middle Income (LMI) countries [11]. These publications are about 400 pages.

The overall volume of the papers, published in MPI is about 2000 pages.

### IV. MPI PUBLICATION OF CONFERENCE ABSTRACTS

From its 2<sup>nd</sup> issue MPI started to publish abstracts of the International Conferences on Medical Physics (ICMP). These were prepared by the Editors of the respective Conference. Together with these MPI published also the abstracts of the Conferences/Congresses of the IOMP Regional Organisations (RO) and related activities. So far the published abstracts are from:

- 20th ICMP: Brighton, UK, September 1-4, 2013;
- RPM 2014: Varna, Bulgaria, 30 May-2 June 2014;
- 22nd ICMP: Bangkok, Thailand, 9 – 12 December, 2016;
- 24th ICMP: Santiago, Chile, 9 – 12 September, 2019
- AOCMP: Phuket, Thailand, 3-5 December 2020

By 2022 MPI has published about 2100 pages of abstracts from these international events.

### V. MPI SPECIAL ISSUE ON HISTORY OF MEDICAL PHYSICS

In 2016 a project was initiated by S Tabakov aiming to cover the History of Medical Physics. This project was decided to be published as Special Issues, the first one being published in 2018. Initially Editors of the Series of publications on the subject were S Tabakov and P Sprawls and in 2020 G Ibbott joined the Editorial team. A special sub-website was developed for the History issues by the MPI Technical Editor M Stoeva (then Chair of the Medical Physics World Board) [12]. So far 7 Special Issues have been published covering:

Special issue 1 [13]: \*X-ray Tubes Development; \*Film-Screen Radiography Receptor Development; \*History of Medical Physics e-Learning Introduction and First Steps

Special issue 2 [14]: \*Fluoroscopic Technology from 1895 to 2019; \*The Scientific and Technological Developments in Mammography; \*Review of the Physics of Mammography

Special issue 3 [15]: \*History of Dental Radiography ; \*The History of Contrast Media Development in X-Ray Diagnostic Radiology; \*Medical Physics Development in Africa

Special issue 4 [16]: \*A Retrospective of Cobalt-60 Radiation Therapy; \*The Many Steps and Evolution in the Development of Computed Tomography; \*Medical Physics Development in South-East Asia; \*History of Medical Physics Education and Training in Central and Eastern Europe

Special issue 5 [17]: \* Ultrasound - the First 50 Years;\*Measurement of Acoustic Pressure and Intensity Using Hydrophones;\* Measurement of Acoustic Power and

Intensity Using Radiation Force; \*Thermal Methods for Ultrasound Measurement development

Special Issue 6 [18] : \*History of Medical Ultrasound - Imaging; \*The Dasonograph Story; \*Hewlett Packard - Innovations that Transformed Diagnostic Ultrasound Imaging; \*History Of Doppler Ultrasound; \*A History of HIFU Therapy

Special Issue 7 [19]: History of IOMP

These Special issues attract significant interest with thousands of readers. The overall volume of the MPI Special issues so far is over 900 pages.

## VI. CONCLUSION

For the first 10 years of its existence the MPI journal proved to be a very useful resource for the medical physics profession. During this period of time the Journal published 20 regular issues and 7 Special issues. The overall volume of the publications is about 5000 pages. All of these issues supported the IOMP global activities for the development of medical physics by providing information and sharing experience among IOMP member societies.

The free information provided by MPI to all IOMP members is considered by all colleagues as a very important contribution to their professional development. This is especially true for the colleagues in LMI countries.

The journal provided many papers and shared experience important during the Covid 19 pandemic. At that time the MPI Editors led a survey among many of the medical physics journals to assess activities of the publications in support of the unexpected change in professional and everyday life. All Journals reported increased activities, what was very important for the continuation of the activities in the medical physics profession. During the period June-December 2020 MPI had c.48,000 visits to its web site (c.37% from N.America, 28% from Asia and 27% from Europe) [20].

The steady number of MPI readers and the high number of downloads shows that the Journal content is very useful to the global community of medical physicists and that the educational and professional topics are of special importance for the profession.

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