

MPI SPECIAL ISSUE No.1 (2018) - HISTORY OF MEDICAL PHYSICS

This first Special Issue of the IOMP Journal Medical Physics International (MPI) from April 2018 begins the series of publications linked with the IOMP project “History of Medical Physics”, announced last year at MPI, 2017, No1, p. 68-69 (April 2017).

This MPI Special Issue can be downloaded free from: www.mpjournal.org/pdf/2018-SI-01/MPI-2018-SI-01.pdf

In this Special Issue, prepared for publication during 2017-2018, there are three chapters from two of the volumes. The chapters are about the History of X-ray Tubes development (49 pages), the History of Film-Screen Receptors development (31 pages) and the History of e-Learning development (30 pages). Here below is the Content of the three Chapters:

X-Ray Tubes Development (Rolf Behling)

Content

1. Enabling technologies and physics in the 19th century
2. Röntgen’s discovery
3. Early clinical use and industrialization from 1896
4. Victims of X-rays and safety measures
5. High vacuum vs. semi-vacuum
6. Götze’s line focus
7. Rotating targets
8. Stationary anode tubes
9. Component development
 - a. Anodes
 - b. Cathodes and electron focusing
 - c. Bearings and rotor systems
 - d. Tube frame
 - i. Glass
 - ii. Metal center section
10. Special applications and features
 - a. Dental X-ray
 - b. Mammography
 - c. Angiography / cardiology application
 - d. Compactness in radiography
11. Production
Bibliography

Film-Screen Radiography Receptor Development A Historical Perspective (Perry Sprawls)

Content

1. Introduction and Overview
2. Glass Plates, the First Radiographic Receptor
3. The Evolution of Film Base Materials
4. The Sensitive Photographic Emulsion

5. Radiographic Film for Specific Clinical Applications
6. Radiographic Image Viewing
7. Chemical Processing of Film
8. Intensified Radiography
9. Radiography Image Noise
10. Intensifying Screen Composition
11. Advances in Film Science and Technology
12. The Final Radiographic Receptor Design and Characteristics
13. Chronology: A Century of Radiography Receptor Developments in Review
Acknowledgements
Bibliography

History of Medical Physics e-Learning Introduction and First Activities (Slavik Tabakov)

Content

1. The Introduction of e-Learning in Medical Physics
 - 1.1 Pilot Project Emerald and Image Database (IDB) - the second IDB in the world with ISBN
 - 1.2 Project EMIT and the first Conference on e-Learning in Medical Physics
2. Internet Based e-Learning materials and other e-Learning projects
 - 2.1 Emerald – Internet Issue, the first dedicated education/training web site in the profession
 - 2.2 The Sprawls Resources
 - 2.3 Various Directions of e-Learning after 2000
 - 2.4 Medical Physics International Journal
3. Medical Physics e-Encyclopaedia and Multilingual e-Dictionary of Terms
 - 3.1 Medical Physics e-Dictionary of Terms
 - 3.2 Medical Physics e-Encyclopaedia
4. Conclusion
Acknowledgements
Bibliography

These Chapters were prepared to be used as Guides for the development of future chapters in this large project. Using the experience from another large project (e-Encyclopaedia of Medical Physics), we are aware that such Guides are setting important trails in the parallel work of various specialists from many countries.

The results (chapters and volumes) of the project will be published by the MPI Journal. Contribution to this large project is welcome from all colleagues (in the various volumes of the History). To facilitate the progress of the project we sent Questionnaires to all Societies and included a History session during the World Congress in Prague.

MPI Co-Editors: Slavik Tabakov and Perry Sprawls