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# Physics and Imaging in Radiation Oncology

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## Editorial

### *Physics and Imaging in Radiation Oncology* comes of age



This editorial is written to celebrate the seven-year journey of *Physics and Imaging in Radiation Oncology* (*phiRO*). *phiRO* is still a young journal, for sure compared to the classical journals founded in the 19th century, in general science (*Nature*, 1869; *Science*, 1880), in medicine (*New England Journal of Medicine*, 1812; *The Lancet*, 1823) and also in radiation medicine (*British Journal of Radiology*, 1896). On the other hand, the publishing landscape is dynamic, and it has been shown that less than one-fourth of the medical journals that were active fifty years ago are still in operation [1]. Since the 'birth' of *phiRO* (with the first volume in January 2017) [2], we have shown steady growth in the no. of papers we publish per year, as well as in the number of submissions we receive. Last year, in 2023, we received almost 240 submissions and published 117 papers. Slightly more than half of the 2023 submissions originated from Europe, around 20% from North America and Australia combined, while an increasing proportion of the submissions come from Asia (increasing from 10% in 2020 to 25% in 2023). The most recent sign of the maturation of our journal came in June 2023 with the first Impact Factor (of 3.7).

While *phiRO* is increasingly attracting submissions from around the globe, we are still fully committed to serving the physics and imaging scientists associated with the European Society for Radiotherapy and Oncology (ESTRO). During the last years, we have taken over the 'torch' from *Radiotherapy and Oncology* in publishing the very best physics and imaging contributions presented at the annual ESTRO meeting [3–13]. This tradition secures a strong connection between *phiRO* and the highest quality science presented by leading groups and individuals in our field. As we continue to grow, this connection will be essential to achieve our goal of becoming the first-choice publication route for all medical physics and imaging scientists in radiation oncology.

Our tight connection to ESTRO is also evident by our series of publications related to other activities of the society, including the ESTRO Physics workshops. Several of our special issue collections originate from these grassroot initiatives [14–16]. In this setting, *phiRO* supports these activities by being the publication channel for research findings [e.g. 17], for survey papers [18–20] and other scientific workshop outputs. In addition, we are shortly publishing our first ESTRO guideline paper, while several others are in the pipeline. These are all excellent examples of the mutual dependence and benefit between our society and *phiRO*.

In the previous and current volume, *phiRO* has published the two first pairs of 'letter to the editor' and 'author response' [21–24]. This is a classical format for scientific discussions that we indeed welcome in our journal. This mode of scientific interaction could be seen as an early form of open post-publication peer review, as successfully adopted by some journals as a main component of their manuscript evaluation strategy (e.g. *Atmospheric Chemistry and Physics* from 2001, with current

Impact Factor of 6.3) [25]. However, with the development of professionally focused social media channels (e.g. former Twitter, now X, and LinkedIn), many journals are using these platforms for post-publication announcements and discussions of scientific papers. In *phiRO*, we have recently formed a new team of scientists and Editorial Board Members that will reinforce our social media presence. Our ambition is to provide an interactive platform for genuine scientific discussions [7]. It is the aim that these discussions will merge the classical 'letter to the editor' format with the engaging scientific exchanges taking place at our conferences. You are encouraged to take part in these discussions at our X platform [26].

*phiRO* has also matured within the family of ESTRO's journals. By belonging to this family, we have taken advantage of the efficient manuscript transfer system from *Radiotherapy and Oncology*. Currently, we are receiving manuscript submissions for a joint special issue with *Radiotherapy and Oncology*, on automation in radiation oncology. This represents a new level of collaboration, where the two journals are taking part on equal terms, with the same requirements for originality and quality, yet with distinct differences in the journal profiles. As a journal for the whole field of radiation oncology, papers in *Radiotherapy and Oncology* should be written so that they are relevant for an interdisciplinary audience. Papers that are more aimed for a specialised, in-depth physics and imaging-focused readership, should be submitted to *phiRO*. This principle applies generally and not only for this special issue. Even more recently we have also initiated a joint special issue on brachytherapy, along with our two online sibling journals, *Clinical and Translational Radiation Oncology* and *Technical Innovations and Patient Support in Radiation Oncology*. Our common online and flexible format opens possibilities for new and exciting ways of publishing. In the future, the journals in the ESTRO family will continue to join forces, to serve the field of radiation oncology the best. Our perspective is still that *phiRO* should become the first choice journal for physics and imaging scientists in our field. Our unique and dedicated readership, our fully open access profile, combined with our thorough peer-review processes are advantages that should help us make this ambition come through.

Looking outside of our profession onto the wider publishing landscape, it is interesting to note that the growth of *phiRO* has taken place through a period with massive changes and challenges in the publication industry. The movement towards open access is one major change, altering the business models of publishing houses with implications for associated institutions such as libraries and universities. Open access benefits all scientists across the globe as it gives immediate access to research ideas and results through any internet connection. This is very likely to have contributed to our first Impact Factor being relatively high. However, the open access publication fees have also become the

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fuel for the new 'mega journals' that cover broad scientific areas, e.g. *Scientific Reports* covers all natural sciences, medicine and engineering, and published almost 22,000 papers in 2022 [27]. Closer to our field, *Frontiers in Oncology* published more than 7000 papers in the same year [27]. These journals typically only evaluate the scientific validity in their submissions (in terms of methodology and analysis), but do not take the potential impact or importance into account in their decisions to publish. While this contradicts the requirement of originality enforced by traditional journals, there are several agreeable features in this approach, e.g. by supporting the publication of negative results, and of replications of findings. Another major change in the publishing landscape is the appearance of so-called predatory journals [28]. While this term itself has been debated, journals recognised as belonging to this category are characterised by an aggressive (and often unscientific) journal marketing, combined with superficial peer-review and very short manuscript handling times. While establishing *phiRO* in this landscape, we have emphasised the opposite, focusing on a high-quality and thorough peer-review process. While efficient and rapid handling is important, we are always prioritising careful peer-review, in the interest of authors and future readers. Most papers we publish typically go through two to five iterations of peer-review and author revision with the involvement of at least two reviewers. Our strategy is to take the best from the open access world (its wide, immediate and no-cost availability) and combine this with the high-quality peer-review from classical high-impact journals.

With our many achievements and ongoing initiatives, coupled with our strong first Impact Factor, we experienced an almost doubling in submission numbers from 2022 to 2023, and the trend appears to continue. For our rigorous peer-review strategy to be sustainable, we are now expanding our team of editors with two new Associate Editors. One of the new Associate Editors will be covering the increasing involvement of computer science in radiotherapy physics and imaging research while the other will strengthen our physics expertise connected to adaptive and 4D radiotherapy. Besides, we are every year updating our team of Editorial Board members, to make sure we continue to have scientifically active experts from every sub-field of the research areas affiliated to us. These are often involved at a level in-between reviewers and editors, e.g. being involved in the handling of papers transferred from *Radiotherapy and Oncology*.

To conclude, *phiRO* is indeed coming of age. Using the analogy of upcoming generations, *phiRO* has matured and is embracing a new way of doing things, diverging from approaches from the past. The ambitions for *phiRO* continue to be very high, aiming to become the strongest and most flourishing journal in our field. However, these ambitions can only be achieved if we realise and exploit the mutual dependence and benefit between the journal and the scientific development of us as individuals and as society.

### CRedit authorship contribution statement

**Ludvig P. Muren:** Conceptualization, Writing - original draft, Writing - review & editing.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### References

- [1] Ioannidis JPA, Belbasis L, Evangelou E. Fifty-year fate and impact of general medical journals. *PLoS One* 2010;5:e12531.
- [2] Muren LP, Bonomo L. Open issues in physics and imaging in radiation oncology. *Phys Imaging Radiat Oncol* 2017;1:12-3. <https://doi.org/10.1016/j.phro.2017.01.001>.
- [3] Casares-Magaz O, Moiseenko V, Witte M, Rancati T, Muren LP. Towards spatial representations of dose distributions to predict risk of normal tissue morbidity after radiotherapy. *Phys Imaging Radiat Oncol* 2020;15:105-7. <https://doi.org/10.1016/j.phro.2020.08.002>.
- [4] Taasti VT, Klages P, Parodi K, Muren LP. Developments in deep learning based corrections of cone beam computed tomography to enable dose calculations for adaptive radiotherapy. *Phys Imaging Radiat Oncol* 2020;15:77-9. <https://doi.org/10.1016/j.phro.2020.07.012>.
- [5] Kron T, Thorwarth D. Single-fraction magnetic resonance guided stereotactic radiotherapy – a game changer? *Phys Imaging Radiat Oncol* 2020;14:95-6. <https://doi.org/10.1016/j.phro.2020.06.003>.
- [6] Redalen KR, Thorwarth D. Future directions on the merge of quantitative imaging and artificial intelligence in radiation oncology. *Phys Imaging Radiat Oncol* 2020; 15:44-5. <https://doi.org/10.1016/j.phro.2020.06.007>.
- [7] Muren LP, Redalen KR, Thorwarth. Five years, 20 volumes and 300 publications of *Physics and Imaging in Radiation Oncology*. *Phys Imaging Radiat Oncol* 2022; 21: 123-125. doi: 10.1016/j.phro.2022.02.018.
- [8] Peters N, Muren LP. Towards an integral clinical proton dose prediction uncertainty by considering delineation variation. *Phys Imaging Radiat Oncol* 2022;21: 134-5. <https://doi.org/10.1016/j.phro.2022.03.001>.
- [9] Künzel TD. Towards real-time radiotherapy planning: The role of autonomous treatment strategies. *Phys Imaging Radiat Oncol* 2022;24:136-7. <https://doi.org/10.1016/j.phro.2022.11.006>.
- [10] Engeseth GM, Stokkevåg C, Muren LP. Achievements and challenges in normal tissue response modelling for proton therapy. *Phys Imaging Radiat Oncol* 2022;24: 118-20. <https://doi.org/10.1016/j.phro.2022.11.004>.
- [11] Fast MF, Lydiard S, Boda-Heggemann J, Tanadini-Lang S, Muren LP, Clark CH, et al. Precision requirements in stereotactic arrhythmia radioablation for ventricular tachycardia. *Phys Imaging Radiat Oncol* 2023;28:100508. <https://doi.org/10.1016/j.phro.2023.100508>.
- [12] Horst F. Calorimetry as a tool to improve the dosimetric accuracy in novel radiotherapy modalities. *Phys Imaging Radiat Oncol* 2023;28:100516. <https://doi.org/10.1016/j.phro.2023.100516>.
- [13] van Elmpst W, Taasti VT, Redalen KR. Current and future developments of synthetic computed tomography generation for radiotherapy. *Phys Imaging Radiat Oncol* 2023;28:100521. <https://doi.org/10.1016/j.phro.2023.100521>.
- [14] Clark CH, Jornt N, Muren LP. The role of dosimetry audit in achieving high quality radiotherapy. *Phys Imaging Radiat Oncol* 2018;5:85-7. <https://doi.org/10.1016/j.phro.2018.03.009>.
- [15] van Elmpst W, Landry G. Quantitative computed tomography in radiation therapy: a mature technology with a bright future. *Phys Imaging Radiat Oncol* 2018;6:12-3. <https://doi.org/10.1016/j.phro.2018.04.004>.
- [16] Taasti VT, Wohlfahrt P. From computed tomography innovation to routine clinical application in radiation oncology – a joint initiative of close collaboration. *Phys Imaging Radiat Oncol* 2024;29:100550. <https://doi.org/10.1016/j.phro.2024.100550>.
- [17] Burghelma M, Bakkali Tahiri J, Dhont J, Kyndt M, Gulyban A, Szkitsak J, et al. Results of a multicenter 4D computed tomography quality assurance audit: Evaluating image accuracy and consistency. *Phys Imaging Radiat Oncol* 2023;28: 100479. <https://doi.org/10.1016/j.phro.2023.100479>.
- [18] Zhang Y, Trnkova P, Toshito T, Heijmen B, Richter C, Aznar M, et al. A survey of practice patterns for real-time intrafractional motion-management in particle therapy. *Phys Imaging Radiat Oncol* 2023;26:100439. <https://doi.org/10.1016/j.phro.2023.100439>.
- [19] Trnkova P, Zhang Y, Toshiyuki T, Heijmen B, Aznar MC, Albertini F, et al. A survey of practice patterns for adaptive particle therapy for interfractional changes. *Phys Imaging Radiat Oncol* 2023;26:100442. <https://doi.org/10.1016/j.phro.2023.100442>.
- [20] Knäusl B, Taasti VT, Poulsen P, Muren LP. Surveying the clinical practice of treatment adaptation and motion management in particle therapy. *Phys Imaging Radiat Oncol* 2023;27:100457. <https://doi.org/10.1016/j.phro.2023.100457>.
- [21] Grivas N, Cox I, Boellaard T, van der Poel H. Re. van den Berg et al, Deep learning for automated contouring of neurovascular structures on magnetic resonance imaging for prostate cancer patients. *Phys Imaging Radiat Oncol* 2023;28:100513. doi: 10.1016/j.phro.2023.100513.
- [22] van den Berg I, Savenije MHF, Teunissen FR, van de Pol SMG, Rasing MJA, van Melick HHE, et al. In response to Grivas et al. *Phys Imaging Radiat Oncol* 2023; 28: 100514. doi: 10.1016/j.phro.2023.100514.
- [23] Wahid KA, Sahlsten J, Jaskari J, Dohopolski MJ, Kaski K, He R, et al. Harnessing uncertainty in radiotherapy auto-segmentation quality assurance. *Phys Imaging Radiat Oncol* 2024;29:100526. <https://doi.org/10.1016/j.phro.2023.100526>.
- [24] Rodríguez Outeiral R, Ferreira Silvério N, González PJ, Schaake EE, Janssen T, van der Heide UA, et al. Response letter to Wahid *et al.* regarding our publication "A network score-based metric to optimize the quality assurance of automatic radiotherapy target segmentations". *Phys Imaging Radiat Oncol* 2024;29:100528. doi: 10.1016/j.phro.2023.100528.
- [25] <https://www.atmospheric-chemistry-and-physics.net/>.
- [26] [twitter.com/PhiroTweets](https://twitter.com/PhiroTweets).
- [27] Ioannidis JPA, Pezzullo AM, Boccia S. The Rapid Growth of Mega-Journals: Threats and Opportunities. *JAMA* 2023;329:1253-4. <https://doi.org/10.1001/jama.2023.3212>.
- [28] Butler D. Investigating journals: The dark side of publishing. *Nature* 2013;495: 433-5. <https://doi.org/10.1038/495433a>.

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