Special Issue

Engineering the Future of Radiotherapy: Innovations and Challenges

Message from the Guest Editors

Cutting-edge advancements are transforming radiation therapy (RT), minimizing toxicity and maximizing efficacy. New techniques like stereotactic radiosurgery, proton therapy, and image-guided RT (IGRT) are improving outcomes. The combination of nanoparticles (NPs) and RT opens up a new frontier in cancer treatment. NPs can be used as contrast enhancement in IGRT and may lead to an increased local radiation dose by using particles with higher atomic numbers (Z). The introduction of AI in the routine clinical practice of radiation oncology automates processes, personalizes treatment, and improves quality control. Deep learning models are used for automatic delineation and the segmentation of tumors and organs at risk. AI has also been utilized in treatment planning and optimization. All innovations are driving the RT in the "era of excellence" in anticancer treatment, undertaking the challenge of developing more sophisticated and tailored RT.

Guest Editors

Dr. Kalliopi Platoni

2nd Department of Radiology, Medical Physics Unit (Attikon Hospital), School of Medicine, National and Kapodistrian University of Athens, Athens, Greece

Dr. Vassilis Kouloulias

2nd Department of Radiology, Radiation Oncology Unit (Attikon Hospital), School of Medicine, National and Kapodistrian University of Athens, Athens, Greece

Deadline for manuscript submissions

31 October 2025

Bioengineering

an Open Access Journal by MDPI

Impact Factor 3.7
CiteScore 5.3
Indexed in PubMed

mdpi.com/si/234487

Bioengineering
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
bioengineering@mdpi.com

mdpi.com/journal/bioengineering

Bioengineering

an Open Access Journal by MDPI

Impact Factor 3.7
CiteScore 5.3
Indexed in PubMed

mdpi.com/journal/bioengineering

About the Journal

Message from the Editor-in-Chief

You are invited to contribute a research article or a comprehensive review for consideration and publication in *Bioengineering* (ISSN 2306-5354). *Bioengineering* is published in open access format – research articles, reviews and other contents are released on the Internet immediately after acceptance. The scientific community and the general public have unlimited and free access to the content as soon as it is published. *Bioengineering* provides an advanced forum for the science and technology of bioengineering. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

Prof. Dr. Anthony Guiseppi-Elie
Department of Biomedical Engineering, Texas A&M University, College Station, TX 77843, USA

Author Benefits

High Visibility:

indexed within Scopus, SCIE (Web of Science), PubMed, PMC, CAPlus / SciFinder, Inspec, and other databases.

Journal Rank:

JCR - Q2 (Engineering, Biomedical) Rapid Publication: manuscripts are peer-reviewed and a first decision is provided to authors approximately 19.2 days after submission; acceptance to publication is undertaken in 3.3 days (median values for papers published in this journal in the first half of 2025).

Recognition of Reviewers:

reviewers who provide timely, thorough peer-review reports receive vouchers entitling them to a discount on the APC of their next publication in any MDPI journal, in appreciation of the work done.

MDPI