MEDICAL PHYSICS
The International Journal of Medical Physics
Research and Practice
An Overview of Contents & Submissions

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Disclosures Relevant to the Presentation

1. **MEDICAL PHYSICS**: Editor (Therapy), Stipend

2. **Board of Directors**:
   - American Association of Physicists in Medicine (AAPM)
   - Radiosurgery Society (RSS)

3. **NIH Funding**: U10 Program; UC Davis CCC/NCTN

4. **Book Royalties**:
   (CRC Press: Stereotactic Radiosurgery and Stereotactic Body Radiation therapy)
   (Springer Publishing AG: Handbook of Image-Guided Brachytherapy)

5. UC Davis Radiation Oncology has research agreements with Elekta, Accuray, Mim Software, VisionRT, RaySearch, & Sun Nuclear
MEDICAL PHYSICS: An Overview of Contents & Submissions

Topics in this Presentation:
1. MANUSCRIPT TYPES
2. SECTION HEADINGS
3. TAXONOMY FOR SUBMISSION/DE SELECTION
4. POLICY ON ARTICLE SUBMISSIONS
5. ITHENTICATE – ADDRESSING PLAGIARISM
6. DATA SHARING
7. VIDEO ABSTRACTS
MEDICAL PHYSICS

MANUSCRIPT TYPES
MEDICAL PHYSICS: MANUSCRIPT TYPES

• Research Articles
• Technical Notes
• Review Articles
• Scientific Reports (Task Groups)
• Editorials

Generally, Research Articles articulate and validate a scientific hypothesis. Technical Notes describe new scientific instruments, computational tools, or processes but need not be hypothesis-driven.

A Technical Note is a concise description of a specific development, procedure or device which should be a solution to a specific problem and have sufficient relevance to be useful to many readers of Medical Physics.
MEDICAL PHYSICS: MANUSCRIPT TYPES

• Letters: A Medical Physics Letter (MPL) is a short article on a scientific or clinical topic of overriding importance to medical physicists. An MPL does not preclude publication of a regular research article at a later time, provided the latter is a substantial expansion of the former. The typeset journal page limit for Medical Physics Letters is 5 printed pages.

• Research articles: A Research Article is a report of original experimental or theoretical research. Attention to clarity and conciseness facilitates the review process and also the impact of the published article. Research articles must include novel medical physics scientific or technical content or broadly applicable clinical physics innovations. The typeset journal page limit for Research Articles is 10 printed pages.

• Technical note: A Technical Note is a concise description of a specific development, procedure or device which should be a solution to a specific problem and have sufficient relevance to be useful to many readers of Medical Physics. Authors must insert the words “Technical Note: . . .” at the beginning of their title. The typeset journal page limit for Technical Notes is 5 printed pages.
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TABLE OF CONTENTS:
6 SECTION HEADINGS
• I. THERAPEUTIC INTERVENTIONS
• II. DIAGNOSTIC IMAGING (IONIZING AND NONIONIZING)
• III. QUANTITATIVE IMAGING AND IMAGE PROCESSING
• IV. EMERGING IMAGING AND THERAPY MODALITIES
• V. COMPUTATIONAL AND EXPERIMENTAL DOSIMETRY
• VI. BIOLOGICAL PHYSICS AND RESPONSE PREDICTION
I. THERAPEUTIC INTERVENTIONS

• Research and development for all radiation therapy, animal treatments, image-guided surgery, thermal therapy, endovascular interventions, radiopharmaceutical therapy modalities in current clinical use

• Device development, QA/QC, image guidance, motion management, IMRT planning, virtual clinical trials

• Therapy-related health physics, safety, and error mitigation
MEDICAL PHYSICS:
II. DIAGNOSTIC IMAGING (IONIZING AND NONIONIZING)

- Imaging research for ionizing radiation (CT, x-ray, charged particle, etc., PET, SPECT) and nonionizing (US, MRI, electrical impedance, optical) modalities in current clinical use
- Image quality, QC, detector development, and image reconstruction
- Observer studies and methodologies, virtual clinical trials
- Small animal and histopathology
- Diagnostic imaging-related health physics, safety, and error mitigation

https://doi.org/10.1118/1.4939059
MEDICAL PHYSICS:
III. QUANTITATIVE IMAGING AND IMAGE PROCESSING

• Postacquisition image processing, image restoration and enhancement

• Secondary feature extraction

• Radiomics and biomarkers

• Segmentation, rigid and deformable image registration

• CAD/Quantitative imaging, decision support, staging, treatment response/prognosis/risk prediction

• Imaging research that is neither therapeutic nor diagnostic
IV. EMERGING IMAGING AND THERAPY MODALITIES

- Emerging diagnostic (e.g., microwave, x-ray phase contrast) or treatment modalities that have not yet been translated into clinical use (e.g., microbeam and nanoparticle-mediated therapies)
- Testing and/or experimental clinical evaluation of emerging modalities or combinations of existing modalities
MEDICAL PHYSICS: V. COMPUTATIONAL AND EXPERIMENTAL DOSIMETRY

- Monte Carlo, deterministic algorithm and dosimeter development and measurements, for both ionizing and nonionizing radiation

https://doi.org/10.1118/1.4939059
MEDICAL PHYSICS:
VI. BIOLOGICAL PHYSICS AND RESPONSE PREDICTION

• Radiation exposure risk analysis
• Outcome and response prediction (LQ, TCP)
• Tissue and cell models; microscopy
• Molecular and radiation biology • Physiology and biophysics
MEDICAL PHYSICS

TAXONOMIES: SELECTING EDITORIAL EXPERTISE (IMAGING AND/OR THERAPY)
MEDICAL PHYSICS: TAXONOMY I (IM)

• 1 - IM- X-ray
• 2 - IM- Breast x-ray Imaging
• 3 - IM- CT
• 4 - IM- MRI
• 5 - IM- PET
• 6 - IM- SPECT
• 7 - IM- Nuclear Medicine General
• 8 - IM- Ultrasound
• 9 - IM- Multi-modality imaging systems
• 10 - IM- Optical
• 11 - IM- Other imaging modalities
• 12 - IM/TH- Cone Beam CT
• 13 - IM/TH- Informatics
• 14 - IM/TH- Image Analysis Skills (broad expertise across imaging modalities)
• 15 - IM/TH- Mathematical/Statistical Foundational skills
• 16 - IM/TH- Radiation Transport
• 17 - IM/TH- Image registration techniques
• 18 - IM/TH- image segmentation techniques
MEDICAL PHYSICS: TAXONOMY III (IM/TH)

- 19 - IM/TH- Image-guided surgery
- 20 - IM/TH- Radiopharmaceutical therapy
- 21 - IM/TH- MRI in Radiation Therapy
- 22 - IM/TH- Formal quality management tools
MEDICAL PHYSICS: TAXONOMY IV (TH)

- 23 - TH- Brachytherapy
- 24 - TH- Radiation dose measurement devices
- 25 - TH- External beam- electrons
- 26 - TH- External beam- photons
- 27 - TH- External Beam- Particle/high LET therapy
- 28 - TH- Radiobiology(RBio)/Biology(Bio)
- 29 - TH- response assessment
- 30 - TH- Small Animal RT
- 31 - TH- Non-ionizing radiation therapies
EXPECTATIONS AND POLICY FOR MEDICAL PHYSICS ARTICLES
Medical Physics articles must describe a novel research study that uses medical physics research methodologies to address an important issue in treatment or diagnosis of disease.

The focus can be either improving efficacy of current medical technology or basic research that enables new or emerging modalities.

In addition to novelty, Medical Physics articles should contain generalizable scientific data or conclusions and should be of interest to a defined subset of our readership.

https://doi.org/10.1118/1.4939059
Medical Physics articles must make an original contribution to the literature or to clinical practice. Such articles include the following:

- novel basic scientific developments with potential for improving patient care;
- clinical translation and validation of previously published scientific innovations;
- high-impact clinical physics innovations addressing a significant problem of broad interest to our readership.

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MEDICAL PHYSICS: POLICY III

• Articles that address a narrow clinical physics problem, e.g., evaluation of a specific quality-assurance commercial product, are likely not suitable for Medical Physics and should be submitted to more clinically oriented physics venues, e.g., our sister publication, Journal of Applied Clinical Medical Physics.

https://doi.org/10.1118/1.4939059
ITHENTICATE: Plagiarism detection software
• iThenticate is a plagiarism detection software used in publishing, universities, and government organizations.

• The software scrapes the internet to look for strings of identical text to identify if the text has been duplicated.

• It searches for published works (journals, books, conference proceedings, PhD theses), text from university or organizational webpages, as well as personal websites.

• This helps us to not only catch plagiarism but to identify possible missing references and citations.
MEDICAL PHYSICS: ITHENTICATE
Authors are now asked during eJP submission if any of their data is available to share. Some funders require article data to be published with the article or to be openly available online. However, some articles do not have data (Point/Counterpoint and Review Articles, for example) or are unable to share data used (borrowed from another author/institute). MP does not require data to be published but supports those who wish to publish it with the article (as Supporting Information) or link to their dataset (Github, Zenodo, and other repositories).

Options include:

- No data to share
- Unable to share
- Share upon request to corresponding author
- Data in supplemental file published w/ article
- Data available on an online repository (Github, Zenodo, Dataverse, etc.)
This is an opportunity to present your published article through social media, thereby potentially drawing in a larger readership for your study. Much as with the written abstract, the video abstract should tell the audience what your paper is about and what your key results and conclusions are.

- 1-3 minutes long
- Authors can produce the video or Wiley provides professional production (at cost)
- Press offices at universities can often assist in production
- May include visually striking figures from manuscript

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MEDICAL PHYSICS: VIDEO ABSTRACTS

- Sample Video Abstract....
- https://doi.org/10.1002/mp.13507
To All of the Referees, Associate Editors, Deputy Editors, Editors, Authors..... and Readers of MEDICAL PHYSICS

Thank You