**Preparation of Papers for Journal of Radiation Protection and Research   
(Please title your manuscript in enough detail, so that it can   
effectively reflect the exact scope and content of your study)**

**Abstract**

**Background:** These instructions give you guidelines for preparing papers for Journal of Radiation Protection and Research.

**Materials and Methods:** Use this document as a template if you are using Microsoft Word. The abstract must be a concise yet comprehensive reflection of what is in your article. It should be a microcosm of the full article.

**Results and Discussion:** The abstract must be between 150–300 words. Be sure that you adhere to these limits; otherwise, you will need to edit your abstract accordingly.

**Conclusion:** A structured abstract is required for articles and should be arranged under the following headings: Background, Materials and Methods, Results and Discussion, and Conclusion.

**Keywords:** Enter key words or phrases less than 6, separated by commas.

**Introduction**

JRPR main text should be comprised of these sections in this order: Introduction, Materials and Methods, Results and Discussion, and Conclusion.

Secondary and tertiary headings are enumerated by Arabic numerals followed by periods and parenthesis, respectively.

The introduction should provide the context for the article, the objective of the study, and should state the hypothesis or research question (purpose statement), how and why the hypothesis was developed, and why it is important. It should convince the expert that the authors know the subject and should fill in gaps for the novice. It should generally not exceed 2 or 3 paragraphs.

**Materials and Methods**

The “Materials and Methods” section should include, as appropriate, a detailed description of (1) study design or type of analysis and dates and period of study, as well as mention of Institutional Review Board or Ethics Committee approval (informed consent); (2) condition, factors, or disease studied; (3) details of sample (e.g., study participants and the setting from which they were drawn, inclusion and exclusion criteria; (4) intervention(s), if any; (5) outcome measures or observations; and (6) statistical analysis. Enough information should be provided to enable an informed reader to replicate the study, or, if a methods article has already been published, that article should be cited and important points should be summarized.

**1. Abbreviations and Acronyms**

Define abbreviations and acronyms the first time they are used in the text, even after they have already been defined in the abstract. Abbreviations that incorporate periods should not have spaces. If the full words consist of the proper noun(s), the first letter of each word should be a capital letter (e.g., Korean Association for Radiation Protection [KARP], Japan Health Physics Society [JHPS], and Australasian Radiation Protection Society [ARPS]). If the full words consist of the common noun(s), the first letter of each word should be a small letter (e.g., percent depth dose [PDD], field of view [FOV], and peak signal-to-noise ratio [PSNR]).

**2. Other Recommendation**

1. **Trademarks**

The trade symbol, TM and ® are no longer used. Trade names should be defined at the point of first use (registered trade names should begin with a capital letter). In such case information regarding the manufacturer or supplier is important, and authors should include this information in parentheses after the name or description. The location of the manufacturer or supplier is no longer required because whoever desires more specific details can easily find them online. The following are examples where specific information is required:

All magnetic resonance angiography examinations were performed with a 1.5-T whole-body imager (General Electric Medical Systems).

1. **the en and em dash**

The en dash (–) is slightly wider than the hyphen (-) but narrower than the em dash (—). The en dash is used to represent a span or range of numbers, dates, or time. When expressing a range of values, write “7 to 9” or “7–9”, not “7~9”. Also, use the en dash in chemical abbreviations such as Ni–Al–Si.

The em dash is used in ordinary writing to mark a suspension of sense. It is also used like parentheses, to mark a subordinate thought within a sentence.

1. **Others**

There is a space between an English word and parentheses, and so is a figure and parentheses (e.g., gas electron multiplier (GEM), 11/20 (55.0%), etc.).

There is a space between a number and a unit (e.g. 10 MV X-ray, 50.4 Gy, 0.1×0.2 cm2).

There is no space between a number and word an operator sign. (e.g., 1.8±0.3).

Use a zero before decimal points: “0.25”, not “.25”.

Use “cm3” or “mL”, not “cc”.

Use scientific notation scheme for representing large or small numbers (e.g., 1.0×10-7, not 1.0E-07).

Indicate sample dimensions as “0.1 cm × 0.2 cm”, not “0.1×0.2 cm2”.

The abbreviation for “seconds” is “s,” not “sec”.

Use “Wb/m2” or “webers per square meter”, not “webers/m2”.

For the symbol of element, either AX or X-A is possible (e.g., 137Cs, not to use Cs-137). The symbol of the elements should be used consistently in the text.

Feature the letters in ordinal numerals in superscript form (e.g., 1st, 2nd, 3rd, and 4th).

**3. Math**

If you are using Word, use either the Microsoft Equation Editor or the MathType add-on (http://www.mathtype.com) for equations in your paper.

Number equations consecutively with equation numbers in parentheses flush with the right margin, as in (1). First use the equation editor to create the equation. Use parentheses to avoid ambiguities in denominators. Punctuate equations when they are part of a sentence, as in

|  |  |
| --- | --- |
|  | (1) |

Be sure that the symbols in your equation have been defined before the equation appears or immediately following.

Use the word “Equation” at the start of a sentence, but in text, just use the number, e.g., in (1).

**4. Units**

Use SI units as much as possible—if you must use Imperial or U.S. units, place the SI equivalent in parentheses after the first use (Table 1). If subscripts and superscripts are necessary, place them accurately.

**Table 1.** The SI unit in the field of ionizing radiation

|  |  |  |  |
| --- | --- | --- | --- |
| Derived quantity |  | Unit expressed in terms of base units | Unit expressed in terms of other SI units |
| Activity referred to a radionuclidea) | Becquerel | Bq = s-1 | - |
| Absorbed dose, KERMA | Gray | Gy = m2·s-2 | J/kg |
| Dose equivalent | Sievertb) | Sv = m2·s-2 | J/kg |

a)The hertz shall only be used for periodic phenomena and the becquerel shall only be used for stochastic processes in activity referred to a radionuclide. Activity referred to a radionuclide is sometimes incorrectly called radioactivity.

b)See CIPM Recommendation 2 (CI-2002) on the use of the sievert.

1. **Compound unit**

Compound units should be separated by a multidot (e.g., 4 V · s), but leave the slash if the author uses it since this has a different meaning (for instance, 6 V/s means volts per second). It is also possible to use a negative power to put a unit in the denominator: cm/s2 = cm · s–2. Parentheses may be used to clarify a unit: g/(cm · s) or g · cm–1 · s–1.

**5. Tables and Figures**

1. **Tables**

A table displays information arranged in columns and rows, and is used most commonly to present numerical data. Each table should have a title, be numbered consecutively as referred to in the text, and be positioned as close as possible to its first mention in the text.

The descriptive text of the table caption does not contain a period at the end of the caption, although punctuation may be necessary within the caption itself.

1. **Figures**

Figures should be accurate, clear, and concise. Figures and illustrations are prepared in high quality with high resolution.

The first word of the caption should always be capitalized, regardless of any style that may be chosen to list caption parts (A), (B), etc., if include.

When referencing your figures and tables within your paper, use the abbreviation “Fig.” even at the beginning of a sentence. Do not abbreviate “Table.” (e.g., Fig. 1A, Figs. 3 and 4, Table 2, Tables 4–6).

For both tables and figures, footnotes are indicated with superscript lowercase letters in alphabetical order (a-z).



**Fig. 1.** Schematics of charge comparison method implementation on neutron and gamma signals from the stilbene (A) and the EJ-301 liquid scintillator (B) detectors.



**Fig. 2.** Configurations of neutron/gamma-ray measurement experiment using a stilbene scintillator detector (A) and an EJ-301 liquid scintillator (B).

**Results and Discussion**

The results reported in the manuscript should be specific and relevant to the research hypothesis. Characteristics of the study participants should be followed by presentation of the results, from the broad to the specific. The “Results” section should not include implications or weaknesses of the study, but should include validation measures if conducted as part of the study. Results should not discuss the rationale for the statistical procedures used. Data in tables and figures should not be duplicated in the text.

The “Discussion” section should be a formal consideration and critical examination of the study. The research question or hypothesis should be addressed in this section, and the results should be compared to and contrasted with the findings of other studies. The study’s limitations and the generalizability of the results should be discussed, as well as mention of unexpected findings with suggested explanations. The type of future studies needed, if appropriate, should be mentioned. This section should end with a clear, concise conclusion that does not go beyond the findings of the study.

**Conclusion**

The conclusion is somewhat similar to the introduction. You restate your aims and objectives and summarize your main findings and evidence for the reader.

The conclusion section of your research paper should include the following: overall summary and further research.

**Notes**

**Supplementary Materials (optional)**

JRPR encourages authors to submit supplementary material at submission that will enhance the online version of a published article and aid its novelty. Supplementary material typically includes relevant material that does not form part of the main article, which may include additional data such as computer code, large tables, additional figures or appendices. Supplementary material is not formatted or edited by our editorial team, and so proofs are not provided to authors.

***Examples***

* Supplementary materials can be found via https://doi.org/10.14407/jrpr.####.####
* The online version contains supplementary material available at https://doi.org/10.14407/jrpr.####.####

**Conflict of Interest**

A conflict of interest can occur when you (or your employer or sponsor) have a financial, commercial, legal, or professional relationship with other organizations, or with the people working with them, that could influence your research.

All submissions must include disclosure of all relationship that could be viewed as presenting a potential conflict of interest.

**Acknowledgements**

In scientific publication, Acknowledgments typically are used to list grant or funding support, donors of equipment or supplies, technical assistance, and important specific contributions from individuals who do not qualify for authorship. Acknowledgments should identify anyone who has made substantial intellectual contributions to manuscripts but does not meet the criteria for authorship.

***Examples for funding statement***

* This work was supported partially by the JRPR Research Foundation of South Korea (Grant No. ######), partially by the Radiation Protection and Research Institute of Japan (Grant No. ######), and partially by the Ministry of Radiation Protection of Australia (Grant No. ######).

**Ethical Statement**

When reporting a study that involved human participants, authors should include a statement that confirms that the study was approved by the institutional and/or national research ethics committee (including the name of the ethics committee) and certify that the study was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. For all research involving human subjects, freely-given, informed consent to participate in the study must be obtained from participants and a statement to this should appear in the Ethical Statement.

If ethical approval is not required, authors must either provide an exemption from the ethics committee or are encouraged to cite the local or national legislation that indicates ethics approval is not required for this type of study

***Examples for Ethical Statement for studies that require the ethical approval***

* All procedures performed in study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee (IRB approval no. ######) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.
* This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Institutional Review Board (IRB approval no. ######). Written informed consent was obtained from all participants.
* The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of XXX (IRB approval no. ######). Written informed consent by the patients was waived due to a retrospective nature of our study.

***Examples for Ethical Statement for studies that do not involve human participants***

* This article does not contain any studies with human participants or animals performed by any of the authors.

***Examples for Ethical Statement for studies that do not require ethical approval***

* This study was reviewed and deemed exempt by our Institutional Review Board.
* Ethical approval was waived by the institutional and/or national research committee as the study did not qualify as human biomedical research.
* This is an observational study. The XXX Ethics Committee has confirmed that no ethical approval is required.
* According to Bioethics and Safety Act in Republic of Korea, neither approval from the ethics committee nor informed consent from the study populations is required for this study.

**Data Availability (optional)**

JPRP encourages data sharing wherever possible, unless this is prevented by ethical, privacy, or confidentiality matters. Authors wishing to do so may deposit their data in a publicly accessible repository and include a link to the DOI in the manuscript. Supplemental materials refer to files relates to a specific data (not included in the article), and the link to them needs to appear on the article landing page.

***Examples for Data Availability statement***

|  |  |
| --- | --- |
| Availability of data | Templates for data availability statement |
| Data openly available in a public repository that issues datasets with DOIs | The data that support the findings of this study are openly available at http://doi.org/10.14407/jrpr.####.####. |
| Data openly available in a public repository that does not issue DOIs | The data that support the findings of this study are openly available at [URL]. |
| Data available within the article or its supplementary materials | The authors confirm that the data supporting the findings of this study are available within the article [and/or] its supplementary materials. |
| Data available on request due to privacy/ethical restrictions | The data that support the findings of this study are available on request from the corresponding author, [initials]. The data are not publicly available due to [restrictions e.g. their containing information that could compromise the privacy of research participants]. |
| Data available on request from the authors | The data that support the findings of this study are available from the corresponding author, [author initials], upon reasonable request. |
| Data sharing not applicable – no new data generated | Data sharing is not applicable to this article as no new data were created or analyzed in this study. |

**Author Contribution**

Please enter details of all authors who contributed to the work reported in the manuscript based on their seniority and contribution.

Conceptualization: Kim GH. Methodology: Lee HK, Park JW. Formal analysis: OOO. Funding acquisition: OOO. Project administration: OOO. Visualization: OOO. Writing - original draft: OOO. Writing - review and editing: OOO. Approval of final manuscript: all authors.

**References**

JRPR has adopted the stylistic and formatting recommendations of the “NLM Format, http://www.nlm.nih.gov/citingmedicine,” from which highlights are given in the later section. Authors are responsible for the accuracy and completeness of their references and correct in-text citations. In-text Citation should be made by giving consecutive Arabic numerals in brackets such as [1], [2, 3], [4-6], and [2, 7-9]. In the reference section, the references should be numbered and listed in order of appearance in the text. List all authors if there are less than or equal to six authors, and list the first six authors followed by “et al.” if there are more than six authors. Abbreviate journal names according to those examples used in PubMed.

***Journals***

1. Kim HS, Smith MB, Koslowsky MR, Kwak SH, Ye SJ, et al. Characterization of a CLYC detector and validation of the Monte Carlo simulation by measurement experiments. J Radiol Prot Res. 2017;42:48–55.

2. Yeom YS, Choi C, Han H, Shin B, Nguyen TT, Han MC, et al. Dose coefficients of mesh-type ICRP reference computational phantoms for external exposures of neutrons, protons, and helium ions. Nucl Eng Technol. 2019 Dec 25 [Epub]. https://doi.org/10.1016/j.net.2019.12.020.

***Books***

3. Knoll GF. Radiation detection and measurement. 4th ed. New York, NY: John Wiley & Sons; 2010.

4. Murray RL, Holbert KE. Radioactivity. In: Nuclear energy: an introduction to the concepts, systems, and applications of nuclear processes. 7th ed. Waltham, MA: Elsevier; 2015. p. 31–46.

***Proceedings***

5. Kurihara O, Kim E, Suh S, Fukutsu K, Matsumoto M, Rintsu Y, et al. Reconstruction of early internal doses in the TEPCO FDNPS accident. Proceedings of the 2nd NIRS Symposium on Reconstruction of Early Internal Dose in the TEPCO Fukushima Daiichi Power Station Accident; 2013 Jan 27; Tokyo, Japan. p. 140–162.

***Dissertation/Thesis***

6. Xu D. Gamma-ray imaging and polarization measurement using 3-D position sensitive CdZnTe detectors [dissertation]. Ann Arbor, MI; University of Michigan; 2006.

***Website***

7. World Health Organization. Wholesomeness of irradiated food: report of a Joint FAO/IAEA/WHO Expert Committee [Internet]. Geneva, Switzerland; World Health Organization; 1981 [cited 2020 Mar 1]. Available from: https://apps.who.int/iris/handle/10665/41508.