Guide to Authors for Publication in *Leukos*, the Journal of the Illuminating Engineering Society of North America

Leukos Operations Advisory Board

Abstract—This document describes the submission procedures, manuscript preparation guidelines, review process, and editorial policies for articles appearing in Leukos.

Keywords—publication, editorial policy, review.

1 INTRODUCTION

Leukos, the journal of the Illuminating Engineering Society of North America (IESNA), is an international venue for the publication of technical developments of current interest or lasting importance in illuminating engineering and lighting design. With *Leukos*, the traditional scope of the Society's journal has been broadened to include 5 types of publications:

1. Scientific research results,
2. Engineering developments,
3. Technical aspects of lighting applications,
4. Tutorial articles or critical reviews, and
5. Brief communications.

In addition to these formal publications, each issue of *Leukos* contains an editorial and a section devoted to letters to the editor. The primary distribution mechanism for *Leukos* is the Internet. Four issues are produced annually, each in PDF format and accessible to general subscribers at the website of *Leukos*, maintained by the Illuminating Engineering Society of North America. These issues of *Leukos* are downloadable, searchable, and printable. In addition, a printed edition of all four Internet issues is produced at the end of the publication year, and is provided to archival subscribers. The four annual Internet issues make information available to general subscribers in a timely fashion; the printed compilation of all four issues provides a record for libraries and other institutions with archival requirements.

Members of the *Leukos* Operations Advisory Board: David L. DiLaura, LC, FIES, Editor-in-Chief; Rita Harrold, FIES; Gary Steffy, LC, FIALD; Richard Mistrick, PhD., FIES; Jennifer A. Veitch, PhD., FIES.

2 SCOPE

The scope of *Leukos*, defined by the five types of articles listed above, is meant to provide the international lighting community with information that is topical as well as archival; in disciplines both directly and indirectly related to lighting.

Leukos does not publish conference papers *per se*. Papers that have been presented at a technical conference are *not* considered to have been previously published, even if they are reviewed and appear in a conference proceedings. Conference papers may have considerable current interest or archival value, and conference review committees may recommend that the author of a conference paper submit it to *Leukos* for review and possible publication.

The editorial intent for each of the five types of publications appearing in *Leukos* is as follows.

2.1 SCIENTIFIC RESEARCH RESULTS

These articles report research results of significant and archival value in those scientific disciplines directly or indirectly related to lighting. This includes, but is not limited to:

- Vision, visual psychophysics, psychology, and human factors,
- Physics related to new and existing lamps and lighting systems, and
- Biology related to the effects of light or radiation on living systems.

2.2 ENGINEERING DEVELOPMENTS

These articles report new or improved equipment, materials, processes, or systems used directly or indirectly in lighting, lighting equipment, or lighting design. This includes, but is not limited to:

- Engineering of lamps, ballasts, and controls,
- Basis and practice of photometry,
- Computational simulation and analysis, and
- Design and performance of luminaire optical systems.

2.3 TECHNICAL ASPECTS OF LIGHTING APPLICATONS

Leukos strives to be the venue in which important, technical aspects of lighting applications are presented and discussed. This includes, but is not limited to:

- Electric lighting,
- Daylighting,
- Use of lighting controls including ballasts, dimming, and sensors,
- Technical aspects of a solution to a unique problem in a lighting project, and
- Standards for and innovations in design practice.

2.4 TUTORIALS OR CRITICAL REVIEWS

These articles are summaries of a technical topic in lighting of general interest, written specifically for study and instructional purposes. Tutorial articles develop and summarize a classical topic, have high pedagogical value, including a clear overview and context of the topic, an especially clear development of ideas and concepts, and extensive references. Review articles summarize the current state of a particular area in or related to lighting that is undergoing rapid development. They are produced by an authority in the field and include a clear and comprehensive overview of the topic, a statement of the contemporary issues, and an assessment of important future work. Tutorials and reviews are meant for technically knowledgeable readers who are not specialists in the subjects treated.

2.5 BRIEF COMMUNICATIONS

These are notes or short articles, usually of technical nature, that do not have the scope or extensive results of large studies or engineering projects, but nevertheless provide useful data, analyses, or information.

3 EDITORIAL POLICIES

3.1 PRIOR PUBLICATON

Articles submitted to Leukos must be original work that has not been previously published and is not being concurrently considered by another publication. Appearance on the Internet does not necessarily constitute previous publication. Work that has appeared in print, or on the Internet, in a peer-reviewed format that is archival *does* constitute previous publication. Archival in this sense means retrievable for future reference, i.e., appearing in relevant electronic databases, and/or existing in a publication that is widely circulated and is publicly available, free or by subscription.

Appearance in conference proceedings, whether printed or available on the Internet, does *not* constitute prior publication. Conference proceedings very rarely qualify as archival. Authors should note that if a submission to *Leukos* has appeared in a conference proceedings, it must be so noted in the reference section of the submission.

On occasion, exceptions may be made concerning previous publication for work that is judged to be unusually important, and that has previously appeared in a language other than English. In these cases, submissions translated and reworked into English may be considered for publication in *Leukos*. If they are published in *Leukos* they will be accompanied by a note indicating the language and place of prior publication.

3.2 UNITS AND NOMENCLATURE

Authors must use the Systeme Internationale (SI) for primary units. Imperial or US Customary units can follow in parentheses, if desired. Units, names of units, names of concepts, and symbols must conform to the English vocabulary established by the International Commission on Illumination (CIE) in the latest edition of its *International Lighting Vocabulary*, a joint publication of the IEC/CIE. (4th ed., 1987, at time of writing). Vocabulary should follow ANSI/IESNA RP-16-1996, *Nomenclature and Definitions for Illuminating Engineering*.

3.3 COPYRIGHT

Articles submitted for review to *Leukos* are assumed to contain material for which the author has the right to disclose and is available for general dissemination. Authors must obtain prior consent from other parties, whenever it is necessary. This includes permission to use data, photographs, formulas, diagrams, illustrations, or images of patented or trademarked items for which rights are held by others. Where such permission is required and has been obtained, proper notice must appear in the submission. It is the responsibility of the authors, not the IESNA, to determine the need and extent of permissions and to obtain such permissions. Statements and opinions expressed in an article are those of the author and not the IESNA.

3.4 CONTENT AND LENGTH

The length of a submission to Leukos should be commensurate with the importance, complexity, and scope of the work described. Extensions to previous work may be adequately treated in a few pages; relying on previously published work to establish context and importance. Large studies or new developments may take much more space. Each page in *Leukos* contains approximately 500 words. An article of 5000 words, accompanied by several graphic elements, will require 15 pages. This should be considered the maximum space that will be devoted to most articles.

Letters to the editor are a mechanism for readers to comment upon an article that has previously appeared in *Leukos*. In some cases, an edited version may appear in *Leukos*. Authors of the original article have an opportunity to respond.

In all cases, submissions must be in English. Although submissions to *Leukos* are copyedited before publication, poor writing will not be extensively reworked prior to publication and, within the limits established by the requirements for clarity and changes required by reviewers, articles are published as they have been written. In the limit of very poor writing, clarity can be so compromised that a submission can be rejected for publication.

3.5 INVITED PAPERS

From time to time, the editor of *Leukos* will invite an author to submit a paper on a topic that is particularly timely or important. Invited papers are often used to lead an issue of *Leukos* devoted to a particular subject.

4 SUBMISSION PROCESS

Articles considered for publication in *Leukos* are submitted via an Internet-based process. The IESNA provides an on-line submission and review process that allows for blind reviews and an archiving of all relevant communications. From the IESNA Internet web site, authors are linked to the *Leukos* article submission site. A brief, one-time registration process establishes an author in the article submission and review system. This on-line web site page appears as shown in Fig. 1.

Fig. 1. Login page of the Leukos on-line submission web site.

This web site provides a place where submissions are uploaded from any of several common formats. Whatever its initial format, the on-line submission and review system automatically creates a PDF file from the submission, and uses the PDF file for the review process. Submitting authors have the opportunity to review this automatically-generated PDF file and make sure it accurately reflects the content of their original manuscript.

Initial submissions do *not* require any special formatting, fonts, styles, or templates, but must include all necessary graphs, charts, tables, and images. Manuscript revisions can be minimized if authors understand and use the formatting structure of *Leukos* articles. See section 7 on article structure and formatting below.

The status of an author's submission is always available on-line. Once authors have registered with the submission and review system, they have access to a web page maintained for them by the system. This web page reports the status of any submissions. Communication between an author and the editor is primarily via e-mail, supported by printed and mailed communications as necessary.

Complete details for manuscript preparation and a description of the on-line submission process can be found in Preparing and Submitting an Article to LEUKOS, a document that can be downloaded from the IESNA web site.

5 REVIEW PROCESS

5.1 OVERVIEW

Articles appearing in *Leukos* are peer reviewed. Scientific, engineering, application, and review articles are read and considered by at least two reviewers known to be experts or experienced in those respective fields. Tutorials are read and considered by expert educators. Reviewers make recommendations to the editor, who makes a decision whether to publish the submission.

Submissions are invited from all sources of lighting research, development, and application. An initial assessment of the appropriateness of a submission for *Leukos* is made by the Editor-in-Chief. If the content and scope of a submission are appropriate for *Leukos*, the submission undergoes peer review: it is given to 2 reviewers for analysis. This review process is double-blind: neither author's nor reviewer's names are known to anyone except the editor. Upon recommendations of reviewers, and with the concurrence of the editor, a submission is either:

1. Accepted for publication as submitted,
2. Accepted for publication with revisions as required by the editor or reviewers, or
3. Rejected for publication.

Articles requiring revisions are resubmitted after modification to the editor, who determines if the appropriate revisions have been made.

The editor and reviewers use the following criteria to assess the publication-worthiness of a submission.

5.2 SCIENTIFIC RESEARCH RESULTS

Submissions in this category are evaluated on the following bases:

- Originality, novelty, and importance of the results
- Clarity and completeness of the description of experimental procedures
- Strength and extent of data analysis
- Extent to which the results advance the state of knowledge
- Extent to which relevant prior work is known, used, and cited

Submissions in this category must have clear scientific and technical merit. These articles should contain the usual sections of introduction, materials and methods, results, discussion and analysis, conclusion, and references. Sufficient detail must be provided so that readers can attempt to replicate the reported results. The requirements for proof and repeatability are particularly high if the results presented are extraordinary or unexpected. Authors can expect to be challenged by reviewers and the editor if insufficient data are presented, insufficient analysis is provided, or critical detail is missing.

Reviewers are guided by and are requested to answer the following questions about a submission presenting scientific research results:

How important is the topic?

- Very important and appropriate for archiving or broadcasting to the lighting community. Results are directly and immediately applicable to lighting.
- Important and, though the subject of other previous and current work, this is a good contribution.
- Marginally important; a peripheral issue that might be better treated with a short note.
- Not important enough (for the lighting community) to warrant review.

Is the material original?

- Utterly new
- New
- New twist on old things, but of interest and import
- Old or already in the literature for the most part

How clear is the presentation?

- Clear throughout
- Mostly clear; those parts that are not need only slight revision
- Some parts need significant clarification. For example:_____
- The material is, in general, not clear and needs considerable reworking

How well organized is the material?

- Well organized; all sections are present and appropriate for an article reporting experimental work.
- Everything is here, but the organization needs work.
- Very difficult to follow. For example:_____

Is the experimental procedure correct and appropriate?

- Yes
- Yes, but _____
- No; the procedure(s) are incorrect or inappropriate. For example:_____

Is sufficient data presented?

- There is enough to support the claims and interpretation in the submission
- Nearly sufficient, but the author should comment about this: _____
- Data presented is insufficient. This point the author makes isn't supported:_____

  or
- Data presented is insufficient for a thorough understanding of the conclusions/consequences

How appropriate and thorough is the analysis of the data?

- The analysis is complete and supports the conclusions
- Nearly complete, but the author should consider this issue:_____

- This important aspect of the analysis is incomplete or incorrect:_____

How appropriate, thorough, and clear is the discussion of the results?

- The discussion is clear and thorough.
- Nearly complete, but the author should comment about this:_____
- What's here is fine, but this important aspect or issue has been omitted:_____

How extensive are the references?

- All the important and germane work has been cited.
- Nearly complete, but these should be added: _____
- Important references are missing, and although the author appears to be aware of this work, these should be cited: _____
- The author is apparently unaware of the following important work, which seriously compromises this submission: _____

What is the quality of the writing?

- Good: clear and concise
- Satisfactory, but: wordy, occasional grammar lapses, spelling
- Insufficient quality for publication
- Poor, compromises clarity

Are the graphics sufficiently clear, well labeled, and properly/sufficiently captioned?

- Good
- Figure(s) _____ needs work: labeling, caption, clarity, image quality.
- Not of publication quality

Do you recommend the submission for publication?

- Publish as submitted
- Publish with these minor corrections (or as noted above):_____
- Reconsider after these significant problems are addressed:_____
- Reject for publication

5.3 ENGINEERING DEVELOPMENTS

Submissions in this category are evaluated on the following bases:

- Clarity and completeness of the description of the development
- Originality and utility of the results
- Extent to which the development advances, broadens, or brings more certainty to lighting practice
- Extent to which relevant prior work is known, used, and cited

These submissions must have clear engineering and technical merit. Sufficient detail must be provided so that readers can evaluate or reconstruct the development. Naturally, there are cases where a development in illuminating engineering has aspects that are commercially proprietary. Not everything needs to be disclosed, but authors can expect to be challenged by reviewers and the editor if critical detail is missing. Product and service announcements are important to the industry, and may be important and appropriate for conferences, but may not be appropriate for publication in *Leukos*.

Reviewers are guided by and are requested to answer the following questions about a submission presenting engineering research and development:

How important is the development?

- Very important and appropriate for archiving or broadcasting to the lighting community. The development will have a large impact on lighting engineering.
- Important and, though derivative of or an improvement on other previous and current work, this is a good contribution.
- Marginally important; a small step that might be better treated with a short note.
- Not important enough (for the lighting community) to warrant review.

Is this work original?

- Utterly new
- New
- New twist on old things, but of interest and import
- Old or already in the literature for the most part

How clear is the presentation?

- Clear throughout
- Mostly clear; those parts that are not need only slight revision
- Some parts need significant clarification. For example:_____
- The material is, in general, not clear and needs considerable reworking

How well organized is the material?

- Well organized; appropriate for an article reporting engineering work.
- Everything is here, but the organization needs work.
- Very difficult to follow. For example:_____

Is the engineering presented of high quality?

- Yes; appropriate assumptions, adequate analysis, and high utility
- Yes, but _____
- No; the procedure(s) are incorrect or inappropriate. For example:_____

How sufficient is the detail that is presented?

- Enough to make the engineering clear and to judge its correctness and value
- Nearly sufficient, but this point needs more detail or explanation: _____
- Insufficient detail for a thorough understanding of the development

How appropriate, thorough, and clear is the analysis of the development and its utility?

- Very good
- Nearly complete, but the author should comment about this:_____
- What's here is fine, but this important aspect or issue has been omitted:_____

How extensive are the references?

- All the important and germane work has been cited.
- Nearly complete, but these should be added: _____
- Important references are missing, and although the author appears to be aware of this work, these should be cited: _____
- The author is apparently unaware of the following important work, which seriously compromises this submission: _____

What is the quality of the writing?

- Good: clear and concise
- Satisfactory, but: wordy, occasional grammar lapses, spelling
- Insufficient quality for publication
- Poor, compromises clarity

Are the graphics sufficiently clear, well labeled, and properly/sufficiently captioned?

- Good
- Figure(s) _____ needs work: labeling, caption, clarity, image quality.
- Not of publication quality

Do you recommend the submission for publication?

- Publish as submitted
- Publish with these minor corrections (or as noted above):_____
- Reconsider after these significant problems are addressed:_____
- Reject for publication

5.4 TECHNICAL ASPECTS OF LIGHTING APPLICATIONS

Submissions in this category are evaluated on the following bases:

- Clarity and completeness of the description of the particular challenge addressed in the submission

- Originality, utility, economy, and success of the solution
- The accuracy and extent of detail provided in the description of the solution
- Quality of accompanying graphical information

Submissions in this category must present a detailed description of a unique and successful solution to a difficult application problem in lighting design. Reviewers are guided by and are requested to answer the following questions about a submission related to lighting applications:

How unique is the design situation described in the paper?

- Very unique and appropriate for archiving and broadcasting to the lighting community
- Unique and, though this is the subject of other previous and current work, this is a good contribution
- Only marginally important; a peripheral issue that might be better treated with a short note
- Not unique or important enough (for the lighting community) to warrant review.

Does the submission make it clear why the situation being described is unique and important?

- The design situation, criteria, resolution, or codes involved are clearly described and make the challenge very clear. Others can learn from this.
- The reasons for uniqueness are apparent, though a bit of interpretation is necessary on this issue:_____
- New twist on an old thing; though interesting and important, the reasons for uniqueness will need to be made more clear.
- Old, already in the literature for the most part, or already part of good design practice.

How clear is the presentation?

- Clear throughout
- Mostly clear; those parts that are not need only slight revision
- Some parts need significant clarification. For example:_____
- The material is, in general, not clear and needs considerable reworking

How well organized is the material?

- Well organized; appropriate for an article reporting design work.
- Everything is here, but the organization needs work.
- Very difficult to follow. For example:_____

Is the design solution a good one?

- Yes; appropriate assumptions and good execution.
- Yes, but _____
- No; the author does not consider, or mishandles this important issue:_____

How sufficient is the data that is presented?

- Enough for a reader to follow the process and understand the design solution.
- Nearly sufficient, but the author should comment about this: _____
- Insufficient detail for a thorough understanding of the problem and its solution.

How appropriate, thorough, and clear is the discussion or analysis of the design solution presented?

- Very good
- Nearly complete, but the author should comment about this:_____
- What's here is fine, but this important aspect or issue has been omitted:_____

How extensive are the references to the products, procedures, or processed that have been used?

- All the important and germane details have been cited.
- Nearly complete, but these should be added: _____
- Important details are missing, and although the author appears to be aware of this, these should be provided: _____
- The author is apparently unaware of the following important missing detail, which seriously compromises this submission: _____

What is the quality of the writing?

- Good: clear and concise
- Satisfactory, but: wordy, occasional grammar lapses, spelling
- Insufficient quality for publication
- Poor, compromises clarity

Are the graphics sufficiently clear, well labeled, and properly/sufficiently captioned?

- Good
- Figure(s) _____ needs work: labeling, caption, clarity, image quality.
- Not of publication quality

Do you recommend the submission for publication?

- Publish as submitted
- Publish with these minor corrections (or as noted above):_____
- Reconsider after these significant problems are addressed:_____
- Reject for publication

5.5 TUTORIALS AND CRITICAL REVIEWS

Submissions in this category are evaluated on the following bases:

- Clarity and organization of exposition
- Thoroughness
- Extent of references

Reviewers of tutorials and critical reviews are guided by and are requested to answer the following questions about such submission:

How important is the topic?

- Very important and appropriate for archiving or broadcasting to the lighting community. The topic is classical and the literature will profit from a tutorial, or the topic is currently important and a general review is warranted.
- Important and, though not a topic of wide impact or pressing importance, this is a good contribution.
- Not important enough (for the lighting community) to warrant a tutorial or review.

How clear is the presentation?

- Clear throughout
- Mostly clear; those parts that are not need only slight revision; e.g.:_____
- Some parts need significant clarification. For example:_____
- The material is, in general, not clear and needs considerable reworking

If the submission is a tutorial, how well organized is the material?

- Very well organized; appropriate for pedagogical use.
- Everything is here, but the organization needs work.
- Very difficult to follow or insufficiently organized for successful self-study. For example:_____

If the submission is a review, is it of sufficient scope and depth?

- Yes; all the appropriate issues are presented in sufficient detail
- Yes, but _____
- No; the review misses important issues. For example:_____

How sufficient is the detail that is presented?

- Enough to make the tutorial or review a comprehensive and archival reference.
- Nearly sufficient, but the author should add more detail about this:_____
- Insufficient detail for a thorough tutorial or review. The following are treated too lightly:_____

How extensive are the references?

- All the important and germane work has been cited.
- Nearly complete, but these should be added:
  _____

- Important references are missing, and although the author appears to be aware of these, they should be cited: _____
- The author is apparently unaware of the following important work, which seriously compromises this submission: _____

What is the quality of the writing?

- Good: clear and concise
- Satisfactory, but: wordy, occasional grammar lapses, spelling
- Insufficient quality for publication
- Poor, compromises clarity

Are the graphics sufficiently clear, well labeled, and properly/sufficiently captioned?

- Good
- Figure(s) _____ needs work: labeling, caption, clarity, image quality.
- Not of publication quality

Do you recommend the submission for publication?

- Publish as submitted
- Publish with these minor corrections (or as noted above):_____
- Reconsider after these significant problems are addressed:_____
- Reject for publication

5.6 FINAL DETERMINATION

The editor receives each reviewer's assessment of a submission, a recommendation for its publication, and if appropriate, changes that are either required for publication or changes that are suggested for clarity or completeness. Reviewers may make a recommendation for acceptance for publication, acceptance for publication with changes or additions required by the reviewers and editor, or rejection for publication. In some cases, an author may disagree with the assessments made by the reviewers, or may object to changes or additions to a submission required by reviewers. An author can submit a rebuttal of reviews to the Editor-in-Chief, if there appears to be a technical disagreement or misunderstanding. Such a rebuttal may be submitted to the original reviewers if the Editor-in-Chief believes the issue(s) can be clarified or settled. Reviewers may consider the rebuttal persuasive and alter their recommendation, or counter with their own rebuttals. Depending on the complexity of the issue, the Editor-in-Chief may consult another reviewer. After this additional round of evaluation a decision whether to publish is made. This decision is the sole responsibility of the Editor-in-Chief.

6 PUBLICATION PROCESS

Once a submission has been approved for publication, authors submit files containing (separately) the final, revised text of their submission, and the

accompanying publication-quality graphics. The editor then schedules the appearance of the article in an issue of *Leukos*. In advance of that, authors will receive a proof copy of the article as it will appear in *Leukos*. In addition, authors must submit a completed IESNA copyright transfer form when they approve the proof copy of a submission; all articles appearing in *Leukos* are copyright the IESNA. It is understood that in some cases, authors working for governments may not have the ability to grant copyright transfer. Special licensing or other arrangements are made in these cases.

7 GENERAL LAYOUT OF AN ARTICLE FOR *LEUKOS*

This document is formatted to show the structure and general appearance of articles in *Leukos*. Content is divided into labeled sections to make organization clear and facilitate internal references to material in the article.

The final form of articles in *Leukos* are produced from the author's revised manuscript. Although there is no formatting requirement for initial submissions, errors and revisions will be minimized if the original submitted manuscript follows the structure for articles for *Leukos*. The following sections describe this structure.

7.1 ARTICLE TITLE PAGE

Articles begin with a title, author list, abstract, and list of key words. Professional memberships and honorifics should be indicated as appropriate. Note that during the review process, names and affiliations of authors must not appear in the PDF file that is produced and used during the review process. Thus, the first submission should have author names and affiliations removed. They should be reinstated in the final version of the manuscript before it is uploaded.

7.2 BODY OF THE ARTICLE

Articles that report the results of a scientific investigation should contain major sections that describe the background to the investigation, methods, data, results, analysis, and conclusions. Engineering papers should contain major sections that give the background to the development, measurements, equipment, test results, and mathematics, as appropriate, and finally, the significance of the development. Application papers should contain major sections that give the background to the application problem, the constraints and difficulties, detailed description of the solution, and an assessment of and evidence for success.

7.3 MAJOR SECTIONS

Articles in Leukos are separated into major sections, each of which has an appropriate title, numbered consecutively.

7.3.1 SUBSECTIONS

Major sections are separated into subsections, each of which deals with a single aspect or component of the material in a major section. Each subsection is labeled with a stand-alone subheading. These headings are numbered consecutively.

7.3.1.1 SECTIONS WITHIN SUBSECTIONS.

Outline numbered sections can be used to make internal references to sections in the article easier and unambiguous.

7.4 APPENDIX

Appendices, if appropriate, appear before the acknowledgment.

7.5 ACKNOWLEDGMENT

If acknowledgments are appropriate they are placed before the references. Use the singular heading even if there is more than one acknowledgment. Sponsor and financial support acknowledgments appear here in the acknowledgments paragraph, such as the following sentence. This work was supported in part by the U.S. National Science Foundation under Grant RT123456.

7.6 REFERENCES

References cited usually form the last section of an article. Traditional references cite work that has appeared in printed, peer-reviewed publications, books, and other archival documents that are publicly available. Internet references are discouraged if they are not peer-reviewed, archival publications. Authors are expected to obtain and keep a hard copy of material that is referenced but is not archival, yet important for a submission. It should not be assumed that Internet sites are permanent (Dellavalle 2003).

Reference formatting is described in detail below in section 12.

7.7 BIOGRAPHY

Author biographies are optional and appear at the end of the article. If provided, the biography of each author of the article should be a single paragraph of not more than 100 words.

8 FIGURES: CHARTS, GRAPHS, AND IMAGES

Figures that contain charts, graphs, and graphic images such as drawings or photographs, must be of high quality. For the initial submission, authors are advised to embed figures in the text of the article, which provides the clearest presentation for reviewers. If the article is accepted for publication, the author is required to submit the revised manuscript (containing text and embedded figures) *and* an addition file containing high resolution versions of figures. Figures for this final submission must be in TIFF, EPS, or PowerPoint file format. *Note that JPEG format is not acceptable for the final version of figures*, though that may be the format used when embedding the figures in the initial submission.

Images must be of high quality and be provided in a submission with a resolution not less than 300 ppi. Columns in *Leukos* are 5.25 inches wide and so a figure filling a column requires a horizontal size of 1575 pixels. Using images in TIFF format without compression results in the highest

quality. Images in JPG format, with the fidelity of the compression set to 'high', can produce satisfactory results, but can be used only in the initial submission.

Figure 2 shows a plot that is 4" wide, produced from Microsoft Excel and embedded into this text file as an enhanced metafile. For use in a final version of an article, this image would need to have a horizontal size of 1200 pixels. Notice that the figure label and caption are placed in the margin of the article when formatted for appearance in *Leukos*. For both initial and final submissions, authors should simply place labels and captions below figures.

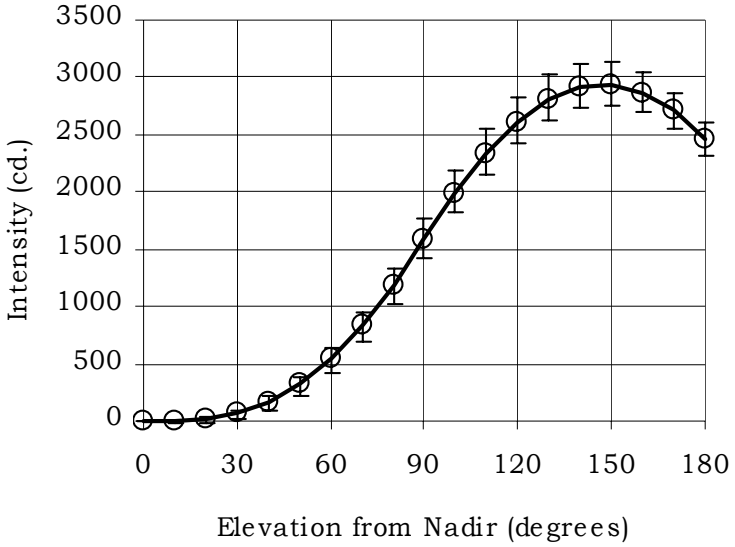

Fig. 2. Plot of intensity and elevation angle for the script-L function produced by a perfectly diffuse emitter.

Plots with multiple data sets require a legend to identify quantities clearly; do not rely on descriptions that appear in the text to make the plots clear. Figure 3 shows a plot with a legend to identify multiple data sets.

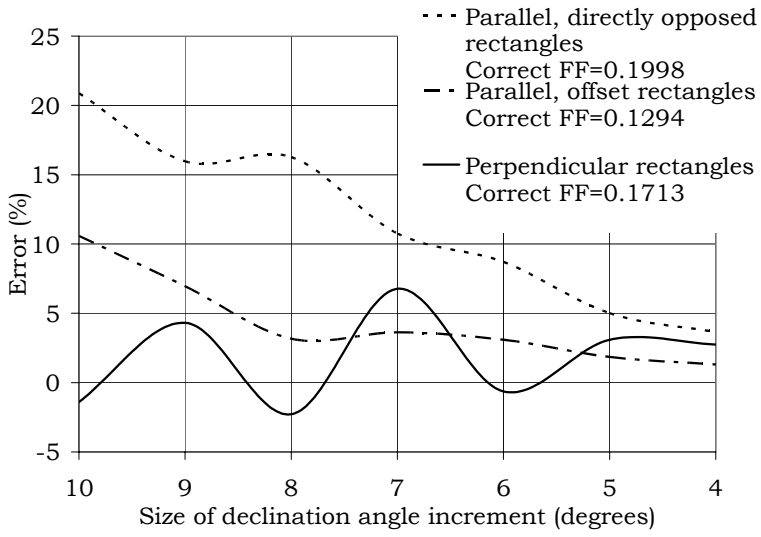

Fig. 3. Plot of form factor calculation errors for different surface orientations.

Figure 4 is an image originally in TIFF format, inserted as a picture in this file.

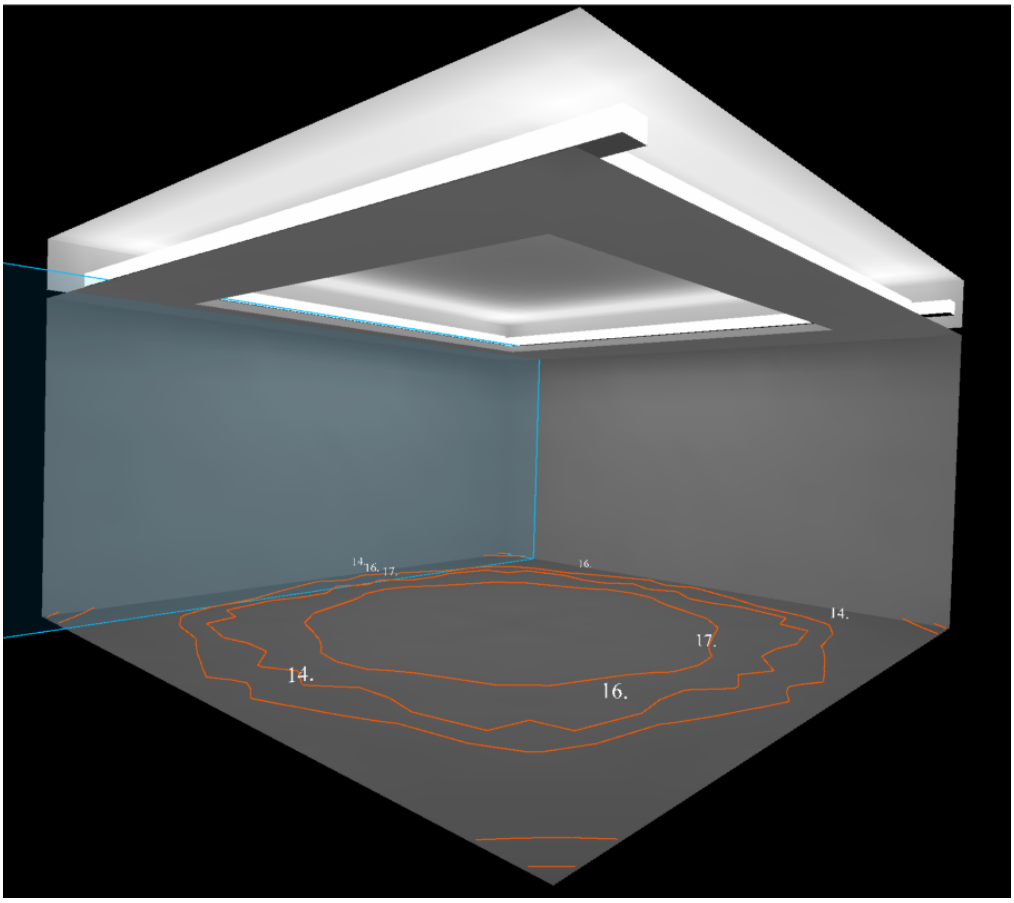

Fig. 4. High resolution display of rendering of the room, with iso-illuminance contours and calculation plane indicated. This image was captured directly from a computer VDU.

Color can be included in any image. However, authors must be aware that only the on-line issues of *Leukos* contain color images. The annual, archival, printed publication containing all four issues is printed with all images rendered in gray scales.

Photographs that do not originate in digital form should be scanned with a resolution no less than 300 ppi, using 8-bit gray or color, and saved as a TIFF-format file. This produces 255 grays or 16 million colors. Figure 5 is an image produced from a black and white photograph in this manner. Figure 6 is a color image produced in this manner.

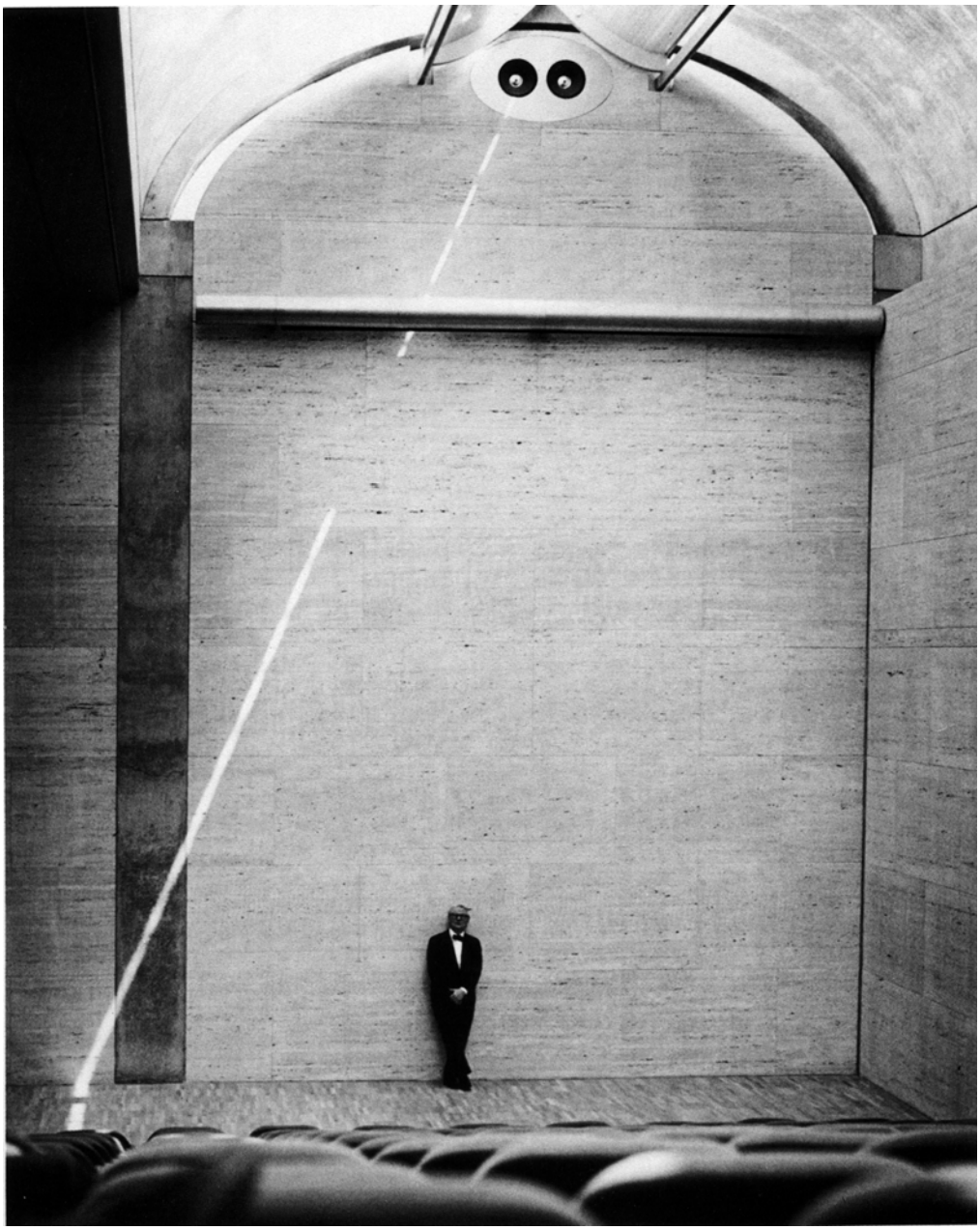

Fig. 5. Louis Kahn standing in the auditorium of the Kimbell Art Museum of his design. Photograph © Kimbell Art Foundation.

Fig. 6. High resolution color image from a color photograph of the interior lighting of the Cathedral of St. John the Evangelist. Milwaukee, Wisconsin. ©KOROM.COM

Figures are numbered consecutively and are always accompanied by a caption that will appear in the margin next to the figure. All captions should begin with "Fig. x" followed by at least one complete sentence of description. Subsequent references to figures should use "Fig. x," unless the reference begins a sentence, then "Figure x" is used. Charts, graphs, and plots should appear without a border. Axes must be labeled and multiple plots clearly identified. Indicate units in each axis label with the quantity in parentheses. All text within a figure must in 8 point Bookman Old Style. Data points should be plotted with bars showing uncertainty or estimated error. A trend line may be added if it is important to data interpretation. Images, charts, graphs, and plots are three horizontal sizes: 4", 5.25", and full page width, 7.25". The size required depends on the detail and complexity of the figure. Figure 1 shows a plot that is 4" wide. Figure 3 is the full text column width, 5.25". In the case of a very large or complex figure, landscape orientation will be used.

9 TABLES

Tables should be numbered consecutively, each with the heading "TABLE x." Below this is the title of the table. The heading and tile appear in the margin next to the top of the table in the final format. For their initial submissions, authors should simply place labels and captions below tables.

TABLE 1.
Units for illuminating engineering

Concept	Concept Name	Constituent Units
Visually evaluated radiant power	Luminous flux	lightwatts, lumens/watt
Time-integrated luminous flux, dosage	Quantity of light	lumen·seconds
Efficacy of radiation	Efficacy	lumens, radiant watts
Efficacy of a source	Efficacy	lumens, electrical watts
Incident surface flux density	Illuminance	lumens, area
Emergent surface flux density	Exitance	lumens, area
Spatial extent	Solid angle	area, distance
Spatial flux density	Luminous Intensity	lumens, steradians
Spatial flux density produced by a surface in a particular directon	Luminance	candelas, area
Fraction of incident light returned by a material	Reflectance	lumens
Fraction of incident light through a material	Transmittance	lumens
Fraction of incident light lost in a material	Absorptance	lumens
Luminous difference of a target and its surround	Luminous contrast	lumens
The perception of luminous strength	Brightness	

Tables should use horizontal and vertical lines of separation. To anticipate the size of a table, all text within it should be 8 point Bookman Old Style.

CAD drawings that may accompany lighting application or engineering articles must be of high quality and reproduced in one of the required formats with a resolution no less than 300 ppi. Figure 7 is an example of a CAD drawing in an article.

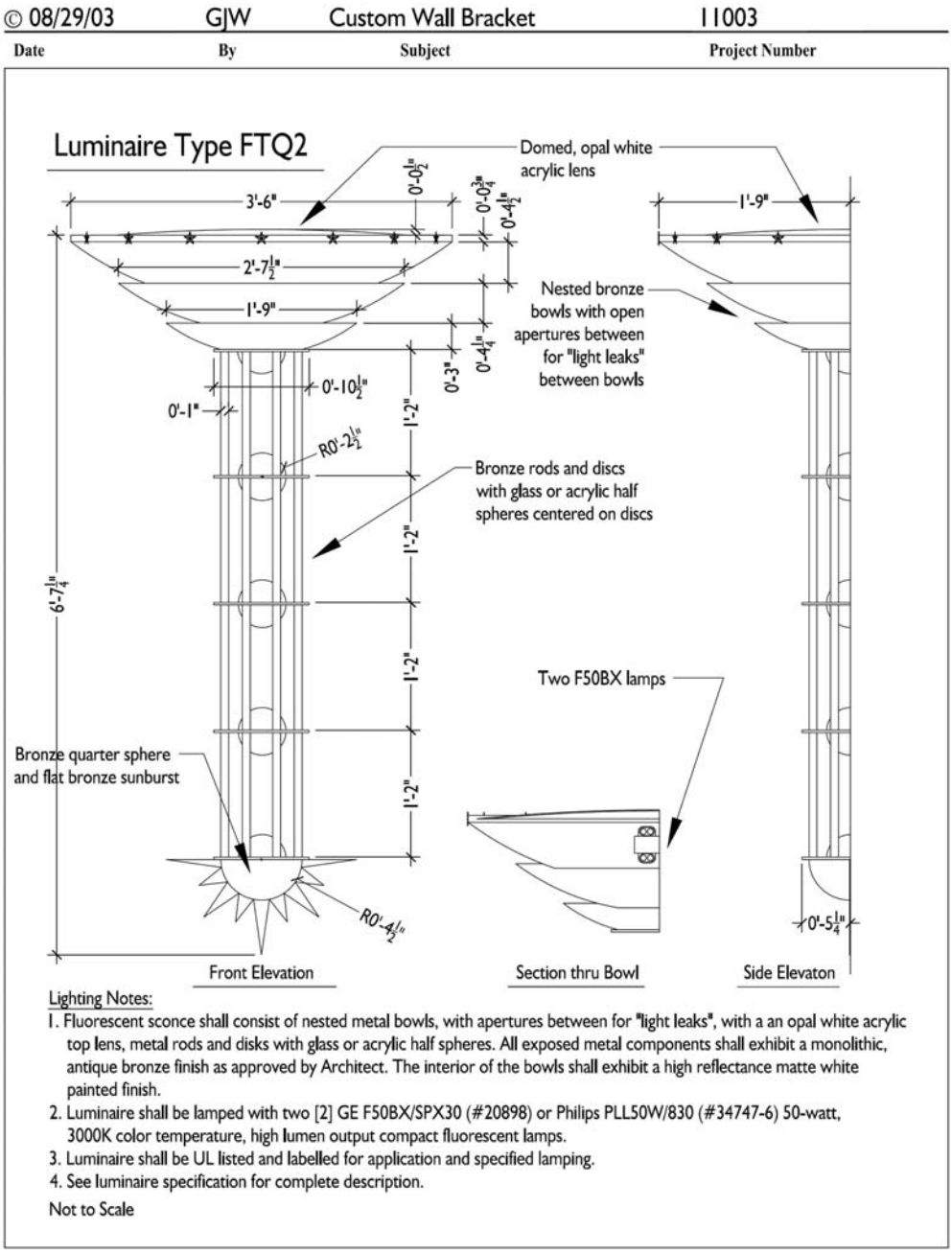

Fig. 7. CAD drawing showing luminaire and mounting detail. Drawing courtesy of Gary Steffy Lighting Design Inc.

10 EQUATIONS

Equations must be produced as part of the text of a submission. The font (Bookman Old Style) and size (10 point) will match the text, as in (1). Authors should use a similar size to best judge the form an equation will have and whether it should be broken into multiple lines.

$$\mathcal{L}_1(\theta,\psi) = \frac{1}{\sin(\theta)} \int_0^{\theta} L(\theta',\psi)\sin(\theta-\theta')\sin(\theta')\,d\theta' \tag{1}$$

Equations should be numbered consecutively, with the number in parentheses at the right margin, as in (1). Equations are referred to simply using their number, as above, not "Eq. (1)" or "equation (1)," except at the beginning of a sentence, where "Equation (1)" is used. Equations should be separated from surrounding text by a single line space.

Scalar quantities are commonly designated with letters from the Latin alphabet in plain-faced font, vectors in lowercase bold, and matrices in uppercase bold. Angles are commonly designed by lowercase Greek letters. Scalar and vector quantities are used in (2).

$$\Phi = \oint_{\Gamma_1} \oint_{\Gamma_2} \mathbf{d\gamma_2} \circ \hat{\boldsymbol{\psi}}\hat{\boldsymbol{\psi}} \circ \mathbf{d\gamma_1} \mathcal{L}_1(\theta,\psi) \tag{2}$$

Equations can be grouped and referred to as a unit, as in (3).

$$\left.\begin{aligned} da_1 &= r\,\tan^{-1}\left(\frac{\mathbf{d\gamma_1}\circ\hat{\psi}}{R}\right)dr = r\left(\frac{\mathbf{d\gamma_1}\circ\hat{\psi}}{R}\right)dr \\ da_2 &= \frac{\mathbf{d\gamma_2}\circ\hat{\psi}}{\cos(\psi)}dz \\ D &= \frac{r}{\sin(\theta')} \\ \cos(\xi_1) &= \cos(\theta') \\ \cos(\xi_2) &= \frac{r\cos(\psi)}{\sqrt{r^2+z^2}} = \cos(\psi)\sin(\theta') \end{aligned}\right\} \tag{3}$$

Punctuate equations when they are part of a sentence. If possible, format long equations so they fit comfortably in the text column, as with (4):

$$d\phi = \mathbf{d\gamma_1} \circ \hat{\boldsymbol{\psi}}\hat{\boldsymbol{\psi}} \circ \mathbf{d\gamma_2}\,\frac{1}{R}\left\{\int_0^{\tan^{-1}(r/Z)} r\,L(\theta',\psi)\cos(\theta')\sin(\theta')\,d\theta'\Bigg|_{r=0}^{r=R} - \int_0^{\tan^{-1}(R/Z)} r\,L(\theta',\psi)\cos(\theta')\sin(\theta')\,d\theta'\right\}. \tag{4}$$

11 MATTERS OF STYLE

Authors are expected to follow the simpler rules involving punctuation, spelling, and grammar. In addition, clarity will be increased by observing a few conventions regarding units, mathematical expressions, and style.

11.1 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 such as IESNA, SI, CIE, ac, and dc do not have to be defined. Abbreviations that incorporate periods should not have spaces.

11.2 OTHER RECOMMENDATIONS

Use one space after periods and colons. Hyphenate complex modifiers: "near-field photometry." Avoid dangling participles, such as, "Using this procedure, the illuminance was calculated." [It is not clear who or what used this procedure.] Write instead, "The illuminance was calculated using this procedure," or "Using this procedure, we calculated the illuminance."

Use a zero before decimal points: "0.725," not ".725." The abbreviation for "seconds" is "s," not "sec." Do not mix complete spellings and abbreviations of units: use "lm/m^2" or "lumens per square meter," not "lumens/m^2."

In American English, periods and commas are within quotation marks, like "this period." Other punctuation is "outside"! The exception to this is when punctuation is part of the quotation, then it should be within the quotation marks. Do not use contractions. The serial comma is preferred: "A, B, and C" instead of "A, B and C."

If you wish, you may write in the first person singular or plural and use the active voice ("I observed that ..." or "We observed that ..." instead of "It was observed that ..."). Remember to check spelling.

The word "data" is plural, not singular. The word "alternatively" is preferred to the word "alternately" (unless you really mean something that alternates). Use the word "whereas" instead of "while" (unless you are referring to simultaneous events). Do not use the word "essentially" to mean "approximately" or "effectively." Do not use the word "issue" as a euphemism for "problem."

Be aware of the different meanings of the homophones "affect" (usually a verb) and "effect" (usually a noun), "complement" and "compliment," "discreet" and "discrete," "principal" and "principle." Do not confuse "imply" and "infer."

Prefixes such as "non," "sub," "micro," "multi," and ""ultra" are not independent words; they should be joined to the words they modify, usually without a hyphen. The common Latin abbreviations are not used in *Leukos*. Use "that is" rather than "i.e.," "for example" rather than "e.g.," "and others" rather than "*et al.*."

12 REFERENCE FORMATTING

Citations in *Leukos* follow the name-year format recommended by the Council of Biology Editors (CBE). This citation method is used broadly in science and engineering publishing. It is very similar to the style of the American Psychological Association.

Citations appear in the body of the article as an author last name and date, set off with brackets, such as: [Okdua 1993]. Sentence punctuation precedes the citation. Multiple references [Okuda 1993; Wilcox 1991] are grouped within the same set of brackets, listed alphabetically, and separated by semicolons. Multiple dates indicating multiple references for the same

author are listed chronologically and separated by commas. [Okuda 1993; Wilcox 1991, 1993] The list of referenced works appears at the end of the article, unnumbered, in alphabetical order. References are formatted according to *Scientific Style and Format: The CBE Manual for Authors, Editors and Publishers*, 6th edition, 1994, 825 p., compiled by the Style Manual Committee Council of Biology Editors. In particular, see pages 617-675 for a complete description of reference formatting. In May 2000 The Council of Biology Editors became The Council of Science Editors.

Examples of reference formatting for books, journal article, magazine article, website, and online posting are given below. Place the reference list at the end of the article. The following general rules apply:

> The period is the primary separator of the elements of a reference. Therefore, it is *not* used after initials of first and second names of authors and is not used in the abbreviation of journal names.
>
> Only the first word in titles of articles, books, and reports is capitalized.
>
> The basic template for references is: author names(s). date. title of work cited. publication information. pagination.

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Sagan C. 1996. The demon-haunted world: science as a candle in the dark. New York(NY): Random House. 457 p.

13 CONCLUSION

This guide has been developed by the *Leukos* Operations Advisory Board and is intended to describe its editorial policies, give guidance to authors, and outline the process by which submissions are reviewed. Questions should be directed to the editor.