

Preparing a manuscript for the Optical Society of America
journals JOSA A, JOSA B,
Applied Optics, and Optics Letters

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Contents			
1 Introduction	2	4.F OCIS Subject Classification . . .	4
2 Page Layout and Length	2	4.G Mathematical and Scientific Notation	5
3 Software	2	4.G.1 Displayed Equations . . .	5
3.A Package Files	2	4.G.2 In-Line Math	5
3.B L ^A T _E X and REVT _E X	3	4.G.3 General Guidelines on Notation	5
3.C Compressing Files for Submission	3	4.H Acknowledgments	6
3.D REVT _E X and L ^A T _E X Support . .	3	5 References	6
4 Main Text	3	5.A T _E X and BibT _E X	6
4.A Typographical Style	3	5.B Formatting Citations	6
4.B Title	4	5.C Formatting Reference Items . . .	7
4.C Author Names	4	6 Figures and Tables	8
4.D Author Affiliations	4	6.A Figures	8
4.E Abstract	4	6.B Tables	9
		7 Conclusion	9

Preparing a manuscript for the Optical Society of America journals JOSA A, JOSA B, *Applied Optics*, and *Optics Letters*

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A style guide and template for JOSA A, JOSA B, *Applied Optics*, and *Optics Letters* manuscripts is provided with a focus on use of L^AT_EX 2_ε and REV_TE_X4. A basic template, `osatemp.tex`, is also included in this distribution. Additional detailed instructions for manuscript preparation and submission are available on the home page for each OSA journal; see <http://www.opticsinfobase.org>.

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OCIS codes: 000.0000, 999.9999.

1. Introduction

Adherence to the specifications listed in this guide is essential for efficient review and publication. For additional guidelines on OSA style see the *OSA Print Journal Style Guide* on individual journal pages on <http://www.opticsinfobase.org>.

2. Page Layout and Length

Paper size for electronic submissions should be U.S. Letter, 8.5 in. × 11 in. (approximately 21.5 cm × 28 cm). Interline spacing has been changed from 2 to 1.2 to help save space. Recommended page length for manuscripts varies with each journal.

Note that *Optics Letters* (OL) has a strict limit of three printed, i.e.—final typeset—pages. Mandatory page charges or higher publication fees apply to papers above each journal’s length limit.

3. Software

3.A. Package Files

The package file `osajnl.sty` calls up `overcite.sty` (citations), `graphicx.sty` (replaces `graphics.sty`), and `geometry.sty` (page layout). Additional package files should be used when needed (e.g., `hyperref.sty`, as used in this document). Use of nonstandard or custom package files is discouraged; however, if such files are essential, they should be included with the manuscript submission.

3.B. \LaTeX and REVTeX

Most versions of $\LaTeX 2_{\epsilon}$ available as freeware, shareware, or commercially will run the OSA \LaTeX files correctly. Authors who choose to use REVTeX should obtain the latest REVTeX4 package from the American Physical Society (<http://www.aps.org>) or from the Comprehensive TeX Archive Network (CTAN; <http://www.ctan.org>) and become familiar with REVTeX4's special features. Note that certain packages, such as `natbib`, that may be required for proper operation of REVTeX are not necessarily included in the standard REVTeX4 distribution and should be obtained separately.

3.C. Compressing Files for Submission

Authors submitting \LaTeX or REVTeX files should create a tarred, gzipped archive of their `.tex` file and all figures (which should be in EPS digital format). All files must be referenced at the root level (e.g., file `OT00000F1.eps`, not `\EPDIR\OT00000F1.eps`). Authors who submit a \LaTeX or REVTeX file with no figures may submit an ASCII text file without compression or archiving. **Note that submission of TeX-generated PostScript files is not allowed.**

3.D. REVTeX and \LaTeX Support

The subfile `osajnl.rtx` is REVTeX4 compliant. REVTeX and \LaTeX commands for title, author, address, and e-mail are supported. The `\pacs{}` command has been made an alias of `\ocis{}`; `\affiliation{}`, an alias of `\address{}`. With little effort, a manuscript prepared in the REVTeX4 substyle for another society's journal can be converted to OSA style. The style commands that may be used at the start of a manuscript for submission to JOSA A, JOSA B, *Applied Optics*, and *Optics Letters* are

```
\documentclass[osajnl,preprint,showpacs]{revtex4} %%REVTeX 4.0
```

or

```
\documentclass[12pt]{article} %%LaTeX 2e
\usepackage{osajnl}
```

Note that \LaTeX packages for *Optics Express* and the *Journal of Optical Networking* should be obtained separately.

4. Main Text

4.A. Typographical Style

Margins and type size will be set by the OSA REVTeX or \LaTeX commands for title, author names and addresses, abstract, references, captions, and so on. Use of custom macros and style files is discouraged.

4.B. Title

Only the first letter in the title is capitalized, except for proper names and abbreviations (note that abbreviations should be spelled out in most cases in manuscript and section titles). Place the title within the braces of the `\title{}` command.

4.C. Author Names

Author names should be given in full and consistent form to facilitate indexing. Every effort should be made to keep author names consistent from one paper to the next as they appear within OSA publications. For REVTeX set each author name off with a separate `\author{}` command above the appropriate affiliation. REVTeX will add commas and the word “and.” For L^AT_EX, author names should be grouped together, as appropriate, with proper punctuation.

4.D. Author Affiliations

Affiliations should follow the format division, organization, and address—and complete postal information should be given. Abbreviations should not be used. Place each affiliation within the braces of the `\affiliation{}` command to achieve the correct format.

For REVTeX:

```
\author{Alessandra Gatti}
\author{Luigi Alberto A. Lugiato}
\affiliation{Istituto Nazionale di Fisica per la Materia,
Dipartimento Di Fisica, \ Via Celoria 16, 20133 Milano, Italy}
```

For L^AT_EX:

```
\author{Gian-Luca Oppo and Richard Martin}
\affiliation{Department of Physics, University of Strathclyde, \
Rottenrow 107, Glasgow G4 ONG, Scotland}
```

4.E. Abstract

Authors should place the abstract between the following commands to achieve the correct format: `\begin{abstract}` and `\end{abstract}`. The abstract should be limited to approximately 100 words. It should be an explicit summary of the paper that states the problem, the methods used, and the major results and conclusions. If the research of another author is referenced in the abstract, complete information (e.g., journal, volume number, first page, year) must be given in the abstract itself.

4.F. OCIS Subject Classification

Optics Classification and Indexing Scheme (OCIS) subject classifications should be placed at the end of the abstract with the `\ocis{}` command. OCIS codes can be found at <http://www.osa.org/pubs/authors/ocis/>.

4.G. Mathematical and Scientific Notation

4.G.1. Displayed Equations

Equations should be centered. Equation numbers should appear at the right-hand margin, in parentheses:

$$H = \frac{1}{2m}(p_x^2 + p_y^2) + \frac{1}{2}M\Omega^2(x^2 + y^2) + \omega(xp_y - yp_x). \quad (1)$$

All equations should be numbered in the order in which they appear and should be referenced from within the main text as Eq. (1), Eq. (2), and so on.

$$\begin{aligned} I_{(z,\tau)} = & \frac{1}{2} \left[\left| A \left(\tau - \frac{\delta\tau}{2} z \right) \right|^2 + \frac{1}{2} \left| A \left(\tau + \frac{\delta\tau}{2} z \right) \right|^2 + 2A \left(\tau - \frac{\delta\tau}{2} z \right) A \left(\tau + \frac{\delta\tau}{2} z \right) \right. \\ & \times \cos \left(\pi \frac{z}{L_c} \right) \left. \int_{-\infty}^{+\infty} \int_{-\infty}^{+\infty} \psi_1^2(x, y) dx dy \right. \\ & + \frac{1}{2} \left[\left| A \left(\tau - \frac{\delta\tau}{2} z \right) \right|^2 + \frac{1}{2} \left| A \left(\tau + \frac{\delta\tau}{2} z \right) \right|^2 - 2A \left(\tau - \frac{\delta\tau}{2} z \right) A \left(\tau + \frac{\delta\tau}{2} z \right) \right. \\ & \times \cos \left(\pi \frac{z}{L_c} \right) \left. \int_{-\infty}^{+\infty} \int_{-\infty}^{+\infty} \psi_2^2(x, y) dx dy. \right. \end{aligned} \quad (2)$$

4.G.2. In-Line Math

To help with conversion, place all math in a proper math environment. For example, expression $3 \times 4 = 12$ should be set this way, `\$3\times 4=12\$`, not this way, `3 \$\times\$4=12`. Simple fractions in in-line math should use parentheses when necessary to avoid ambiguity, for example, to distinguish between $1/(n-1)$ and $1/n-1$. Exceptions to this are the proper fractions such as $\frac{1}{2}$, which are better left in this form. Summations and integrals that appear within text such as $\frac{1}{2} \sum_{n=1}^{\infty} (n^2 - 2n)^{-1}$ should have limits placed to the right of the symbol to reduce white space.

4.G.3. General Guidelines on Notation

Notation must be legible, clear, compact, and consistent with standard usage. In general, acronyms should be defined at first use. Adherence to the following guidelines will greatly assist the production process:

Radical Signs. When possible, avoid oversized radical signs by using the notation of a superscript $1/2$. For example, change $\sqrt{(a+b)(a-c)}$ to $[(a+b)(a-c)]^{1/2}$.

Exponentials. Avoid tiny superscripts of exponential e (e.g., e^{jkl}) by using the alternative `\exp` notation, `\exp(jkl)`.

Variables and Vectors. Set single-letter variables in italics (k). Set three-vectors in boldface (**k**). Functions, derivative “d,” abbreviations, and multiletter identifiers should be set in roman (plain) type ($\alpha \cos, f \dots dx, k^{\text{out}}$).

Multiplication. In general, close up multiplied terms ($p_y p_x$); use \times if multiplication sign is essential (2×10^{-2}) or for continuation in displayed equations [see Eq. (2) above]. Use raised dot only for scalar product ($\mathbf{k} \cdot \mathbf{k}$).

Fences. For simple bracketing the usual order of parentheses and brackets is $\{[(\{[(|)]\})]\}$.

Bit and Byte. The standard abbreviations for bit and byte are b and B, respectively. To avoid confusion, these units should be spelled out in most cases (1 bit, 20 GByte).

Metric System. The metric system is used in OSA journals. If nonmetric units are essential (e.g., for parts specifications), conversion should be given at first mention: “. . . a $\frac{1}{4}$ -in. bolt (1 in. = 2.54 cm).”

4.H. Acknowledgments

Acknowledgments, if included, should appear at the end of the document, just before the references. The number of a grant or contract should be omitted unless its inclusion is required by the agency supporting the research. Use the command `\section*{Acknowledgments}` to create a nonnumbered section heading.

5. References

5.A. *TEX and BibTEX*

Authors must use the standard REV_{TEX}4 or L_AT_{EX}2_ε commands for references and citations. References must be contained within the `.tex` file, not a separate Bib_{TEX} file.

Bib_{TEX}. Bib_{TEX} may be used to create a file containing the references, whose contents (i.e., contents of `.bbl` file) can then be pasted into the bibliography section of the `.tex` file. A new Bib_{TEX} style file, `osajnl.bst`, is provided.

The commands `\begin{thebibliography}{}` and `\end{thebibliography}` format the section according to standard style, showing the title **References**. Use the `\bibitem{label}` command to start each reference.

5.B. *Formatting Citations*

References should be numbered consecutively in the order in which they are referenced in the body of the paper. Use of `\cite{}` will produce superscript reference callouts, which is OSA style, when appropriate REV_{TEX} and L_AT_{EX} packages are used (`natbib` and `overcite`, respectively). References can also be hard coded with `.$~1$`.

In text, reference numbers should follow a comma or period.¹ Two references^{2,3} should be included together, separated by a comma, and three or more consecutive references should be indicated by the bounding numbers and a dash.¹⁻⁴ When on-line reference numbers are essential (e.g., see Ref. 1) use the command `\citeonline{}` for L_AT_{EX}. For REV_{TEX}, use `\onlinecite{}`

5.C. Formatting Reference Items

Each source must have its own reference number. Footnotes (notes at the bottom of text pages) are not used in OSA journals. References require all author names, full titles, and inclusive pagination. Here are some examples of how to set the most common reference types:

Journal paper

1. C. van Trigt, “Visual system-response functions and estimating reflectance,” *J. Opt. Soc. Am. A* **14**, 741–755 (1997).

Book

2. T. Masters, *Practical Neural Network Recipes in C++* (Academic, New York, 1993).

Chapter in a book

3. B. L. Shoop, A. H. Sayles, and D. M. Litynski, “New devices for optoelectronics: smart pixels,” in *Handbook of Fiber Optic Data Communications*, C. DeCusatis, D. Clement, E. Maass, and R. Lasky, eds. (Academic, San Diego, Calif., 1997), pp. 705–758.

Paper in a published conference proceedings

4. R. E. Kalman, “Algebraic aspects of the generalized inverse of a rectangular matrix,” in *Proceedings of Advanced Seminar on Generalized Inverse and Applications*, M. Z. Nashed, ed. (Academic, San Diego, Calif., 1976), pp. 111–124.

Paper in an unpublished conference proceedings

5. D. Steup and J. Weinzierl, “Resonant THz-meshes,” presented at the Fourth International Workshop on THz Electronics, Erlangen-Tennenlohe, Germany, 5–6 Sept. 1996.

SPIE proceedings

6. S. K. Griebel, M. Richardson, K. E. Devenport, and H. S. Hinton, “Experimental performance of an ATM-based buffered hyperplane CMOS-SEED smart pixel array,” in *Optoelectronic Interconnects and Packaging IV*, R. T. Chen and P. S. Guilfoyle, eds., Proc. SPIE **3005**, 254–256 (1997).

IEEE proceedings

7. T. Darrel and K. Wohn, “Pyramid based depth from focus,” in *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition* (Institute of Electrical and Electronics Engineers, New York, 1988), pp. 504–509.

OSA proceedings

8. W. J. Alford, T. D. Raymond, and A. V. Smith, “Characterization of a ring optical parametric oscillator,” in *Advanced Solid-State Lasers*, T. Y. Fan and B. Chai, eds., Vol. 20 of OSA Proceedings Series (Optical Society of America, Washington, D.C., 1994), pp. 476–479.

Personal communication

9. Barbara Williams, Editorial Department, Optical Society of America, 2010 Massachusetts Avenue, N.W., Washington, D.C., 20036 (personal communication, 2001).

Electronic archives and Internet sources

Electronic periodical

10. C. Jerry, “Remarks on the use of group theory in quantum optics,” *Opt. Express* **8**, 76–85 (2001), <http://www.opticsexpress.org>.

6. Figures and Tables

6.A. Figures

For detailed information about appropriate figure resolutions and file types, see *Preparing Electronic Art for OSA Print Journals* on the Author section of the appropriate journal’s homepage.

Figure captions should be listed on one or more pages, after the References and before the figure images. The abbreviation “Fig.” for figure should appear first followed by the figure number and a period.

For electronic submissions all art work must be in digital form, placed in the electronic document with the standard graphics commands. Tables and figures should not appear in the body of the manuscript but on separate pages at the back. With REVTeX4, figures and tables will float to the end of the document, overriding any float options specified. The caption accompanying the figure should include the figure file name. The `\caption{}` command will produce the required results. The following is sample code that may be used for setting figures, although any standard commands are acceptable:

```
\begin{figure}[t]
\centerline{\includegraphics{OT10000F1.eps}}
\caption{Multipanel figure assembled into one EPS file with proper
arrangement and labeling. OT10000F1.eps.}
\end{figure}
```

No more than one figure should appear on a manuscript page, except in the case of multipart figures, which should be assembled into a single file, if possible, and arranged and labeled as shown below. Figure file names should include either the manuscript number or the first author’s last name and the figure number, e.g., b8879F1.EPS or smithF2.EPS. **To avoid mixups, do *not* label figures simply “Fig1.EPS,” or similar.**

6.B. Tables

Tables must be numbered and appear on separate pages. Table titles—which should be brief—must be placed above the table, with the `\caption{}` command. Detailed explanations or table footnotes should appear directly beneath the table. Tables should use horizontal rules to delimit the top and the bottom of the table and column headings. In general, vertical rules should not be used.

7. Conclusion

After the manuscript is proofread, the `.tex` file and figures should be tarred and gzipped. Follow the instructions on the OSA Publications web site for submitting through the e-sub system (<http://www.osa.org/pubs>). Authors should feel free to contact OSA staff for assistance (see appropriate journal page on the web site for contact information).

References

1. C. van Trigt, “Visual system-response functions and estimating reflectance,” *J. Opt. Soc. Am. A* **14**, 741–755 (1997).
2. T. Masters, *Practical Neural Network Recipes in C++* (Academic, New York, 1993).
3. B. L. Shoop, A. H. Sayles, and D. M. Litynski, “New devices for optoelectronics: smart pixels,” in *Handbook of Fiber Optic Data Communications*, C. DeCusatis, D. Clement, E. Maass, and R. Lasky, eds. (Academic, San Diego, Calif., 1997), pp. 705–758.
4. R. E. Kalman, “Algebraic aspects of the generalized inverse of a rectangular matrix,” in *Proceedings of Advanced Seminar on Generalized Inverse and Applications*, M. Z. Nashed, ed. (Academic, San Diego, Calif., 1976), pp. 111–124.
5. D. Steup and J. Weinzierl, “Resonant THz-meshes,” presented at the Fourth International Workshop on THz Electronics, Erlangen-Tennenlohe, Germany, 5–6 Sept. 1996.
6. S. K. Griebel, M. Richardson, K. E. Devenport, and H. S. Hinton, “Experimental performance of an ATM-based buffered hyperplane CMOS-SEED smart pixel array,” in *Optoelectronic Interconnects and Packaging IV*, R. T. Chen and P. S. Guilfoyle, eds., *Proc. SPIE* **3005**, 254–256 (1997).
7. T. Darrel and K. Wahn, “Pyramid based depth from focus,” in *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition* (Institute of Electrical and Electronics Engineers, New York, 1988), pp. 504–509.
8. W. J. Alford, T. D. Raymond, and A. V. Smith, “Characterization of a ring optical parametric oscillator,” in *Advanced Solid-State Lasers*, T. Y. Fan and B. Chai, eds., Vol. 20 of OSA Proceedings Series (Optical Society of America, Washington, D.C., 1994), pp. 476–479.
9. Barbara Williams, Editorial Department, Optical Society of America, 2010 Massachusetts Avenue, N.W., Washington, D.C., 20036 (personal communication, 2001).
10. C. Jerry, “Remarks on the use of group theory in quantum optics,” *Opt. Express* **8**, 76–85 (2001), <http://www.opticsexpress.org>.

Table 1. Standard Abbreviations for 31 Commonly Cited Journals

Macro	Abbreviation	Macro	Abbreviation
<code>\ao</code>	Appl. Opt.	<code>\nat</code>	Nature (London)
<code>\ap</code>	Appl. Phys.	<code>\oc</code>	Opt. Commun.
<code>\ap1</code>	Appl. Phys. Lett.	<code>\opex</code>	Opt. Express
<code>\apj</code>	Astrophys. J.	<code>\ol</code>	Opt. Lett.
<code>\bell</code>	Bell Syst. Tech. J.	<code>\pl</code>	Phys. Lett.
<code>\jqe</code>	IEEE J. Quantum Electron.	<code>\pra</code>	Phys. Rev. A
<code>\assp</code>	IEEE Trans. Acoust. Speech Signal Process.	<code>\prb</code>	Phys. Rev. B
<code>\aprop</code>	IEEE Trans. Antennas Propag.	<code>\prc</code>	Phys. Rev. C
<code>\mtt</code>	IEEE Trans. Microwave Theory Tech.	<code>\prd</code>	Phys. Rev. D
<code>\iovs</code>	Invest. Ophthalmol. Visual Sci.	<code>\pre</code>	Phys. Rev. E
<code>\jcp</code>	J. Chem. Phys.	<code>\prl</code>	Phys. Rev. Lett.
<code>\jon</code>	J. Opt. Netw.	<code>\rmp</code>	Rev. Mod. Phys.
<code>\josa</code>	J. Opt. Soc. Am.	<code>\pspie</code>	Proc. SPIE
<code>\josaa</code>	J. Opt. Soc. Am. A	<code>\sjqe</code>	Sov. J. Quantum Elec- tron.
<code>\josab</code>	J. Opt. Soc. Am. B	<code>\vr</code>	Vision Res.
<code>\jpp</code>	J. Phys. (Paris)		

List of Figure Captions

Fig. 1. Multipanel figure assembled into one file with proper arrangement and labeling.

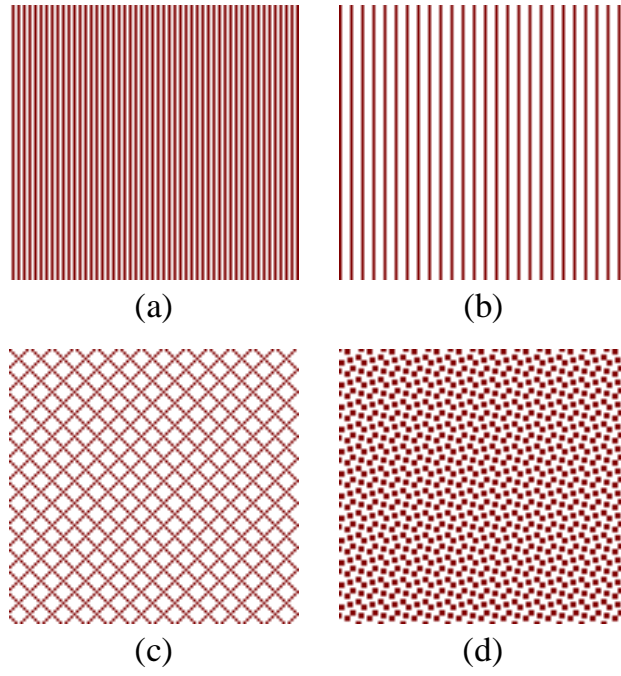


Fig. 1. Multipanel figure assembled into one EPS file with proper arrangement and labeling. AO10000F1.eps.