

# L<sup>A</sup>T<sub>E</sub>X template for preparing an article for submission to OSA journals *Applied Optics*, *Advances in Optics and Photonics*, *JOSA A*, *JOSA B*, and *Optics Letters*

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**OCIS codes:** (140.3490) Lasers, distributed feedback; (060.2420) Fibers, polarization-maintaining; (060.3735) Fiber Bragg gratings.

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## 1. INTRODUCTION

This template is designed to assist with creating an article to submit to *Applied Optics*, *Advances in Optics and Photonics*, *JOSA A*, *JOSA B*, or *Optics Letters*. See the OSA's [Style Guide](#) and [Manuscript Templates](#) pages for more details. Please select the appropriate journal abbreviation (ao, aop, josaa, josab, ol) in the document preamble.

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## 2. EXAMPLES OF ARTICLE COMPONENTS

The sections below show examples of different article components.

## 3. FIGURES AND TABLES

It is not necessary to place figures and tables at the back of the manuscript. Figures and tables should be sized as they are to appear in the final article. Do not include a separate list of figure captions and table titles.

Figures and Tables should be labelled and referenced in the standard way using the `\label{}` and `\ref{}` commands.

### A. Sample Figure

Figure 1 shows an example figure.

### B. Sample Table

Table 1 shows an example table.

**Table 1. Shape Functions for Quadratic Line Elements**

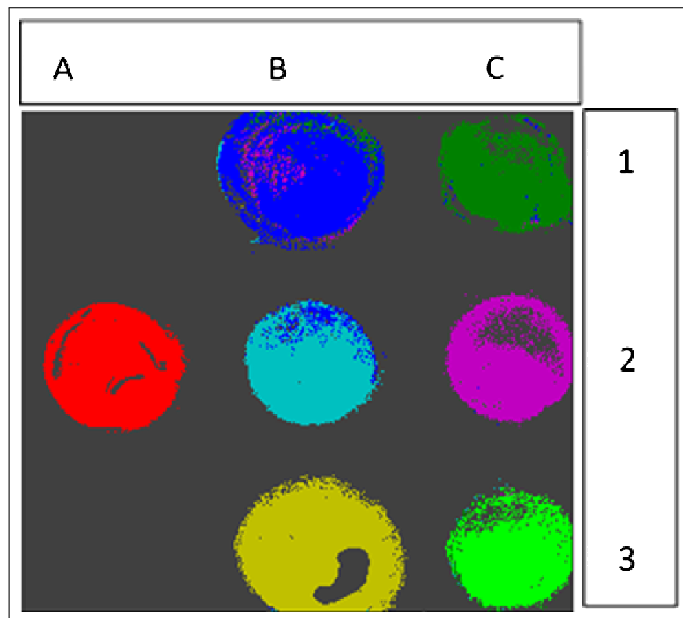
local node	$\{N\}_m$	$\{\Phi_i\}_m (i = x, y, z)$
$m = 1$	$L_1(2L_1 - 1)$	$\Phi_{i1}$
$m = 2$	$L_2(2L_2 - 1)$	$\Phi_{i2}$
$m = 3$	$L_3 = 4L_1L_2$	$\Phi_{i3}$

## 4. SAMPLE EQUATION

Let  $X_1, X_2, \dots, X_n$  be a sequence of independent and identically distributed random variables with  $E[X_i] = \mu$  and  $\text{Var}[X_i] = \sigma^2 < \infty$ , and let

$$S_n = \frac{X_1 + X_2 + \dots + X_n}{n} = \frac{1}{n} \sum_i^n X_i \quad (1)$$

denote their mean. Then as  $n$  approaches infinity, the random variables  $\sqrt{n}(S_n - \mu)$  converge in distribution to a normal  $\mathcal{N}(0, \sigma^2)$ .



**Fig. 1.** False-color image, where each pixel is assigned to one of seven reference spectra.

## 5. SAMPLE ALGORITHM

Algorithms can be included using the commands as shown in algorithm 1.

### Algorithm 1. Euclid's algorithm

```

1: procedure EUCLID( $a, b$ )           ▷ The g.c.d. of  $a$  and  $b$ 
2:    $r \leftarrow a \bmod b$ 
3:   while  $r \neq 0$  do             ▷ We have the answer if  $r$  is 0
4:      $a \leftarrow b$ 
5:      $b \leftarrow r$ 
6:      $r \leftarrow a \bmod b$ 
7:   return  $b$                        ▷ The gcd is  $b$ 

```

## 6. SUPPLEMENTAL MATERIAL

Consult the Author Guidelines for Supplementary Materials in OSA Journals for details on accepted types of materials and instructions on how to cite them. All materials must be associated with a figure, table, or equation or be referenced in the results section of the manuscript. (1) 2D and 3D image files and video must be labeled "Visualization," not "Movie," "Video," "Figure," etc. (2) Machine-readable data (for example, csv files) must be labeled "Data File." Number data files and visualizations consecutively, e.g., "Visualization 1, Visualization 2..." (3) Large datasets or code files must be placed in an open, archival database. Such items should be mentioned in the text as either "Dataset" or "Code," as appropriate, and also be cited in the references list. For example, "see Dataset 1 (Ref. [1]) and Code 1 (Ref [2])." Here are examples of the references:

### A. Sample Dataset Citation

1. M. Partridge, "Spectra evolution during coating," figshare (2014) [retrieved 13 May 2015], <http://dx.doi.org/10.6084/m9.figshare.1004612>.

### B. Sample Code Citation

2. C. Rivers, "EpiPy: Python tools for epidemiology" (Figshare, 2014) [retrieved 13 May 2015], <http://dx.doi.org/10.6084/m9.figshare.1005064>.

## 7. FUNDING INFORMATION

Funding information should be listed in a separate block preceding any acknowledgments. List just the funding agencies and any associated grants or project numbers, as shown in the example below:

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Do not use Funding Information or Acknowledgment headings.

## 8. REFERENCES

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Add citations manually or use BibTeX. See [1–3].

## REFERENCES

1. Y. Zhang, S. Qiao, L. Sun, Q. W. Shi, W. Huang, L. Li, and Z. Yang, *Opt. Express* **22**, 11070 (2014).
2. Optical Society, "OSA Publishing," <http://www.osapublishing.org>.
3. P. Forster, V. Ramaswamy, P. Artaxo, T. Bernsten, R. Betts, D. Fahey, J. Haywood, J. Lean, D. Lowe, G. Myhre, J. Nganga, R. Prinn, G. Raga, M. Schulz, and R. V. Dorland, "Changes in atmospheric constituents and in radiative forcing," in "Climate Change 2007: The Physical Science Basis. Contribution of Working Group 1 to the Fourth assessment report of Intergovernmental Panel on Climate Change," S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miler, eds. (Cambridge University Press, 2007).

**FULL REFERENCES**

1. Y. Zhang, S. Qiao, L. Sun, Q. W. Shi, W. Huang, L. Li, and Z. Yang, "Photoinduced active terahertz metamaterials with nanostructured vanadium dioxide film deposited by sol-gel method," *Opt. Express* **22**, 11070–11078 (2014).
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3. P. Forster, V. Ramaswamy, P. Artaxo, T. Bernsten, R. Betts, D. Fahey, J. Haywood, J. Lean, D. Lowe, G. Myhre, J. Nganga, R. Prinn, G. Raga, M. Schulz, and R. V. Dorland, "Changes in atmospheric constituents and in radiative forcing," in "Climate Change 2007: The Physical Science Basis. Contribution of Working Group 1 to the Fourth assesment report of Intergovernmental Panel on Climate Change," S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miler, eds. (Cambridge University Press, 2007).