

# Three-dimensional fluorophore orientation imaging with polarized multiview microscopy

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**Abstract:** We show that polarized fluorescence microscopes collect data in the angular frequency domain. We use this result to propose and demonstrate efficient algorithms for reconstructing three-dimensional fluorophore orientations from polarized multiview microscope data.

**OCIS codes:** 180.2520 Fluorescence microscopy, 260.5430 Polarization

## 1. Introduction

## 2. Theory

## 3. Results

### 3.1. *Typographical Style*

Margins and type size will be set by the OSA L<sup>A</sup>T<sub>E</sub>X commands for title, author names and addresses, abstract, references, captions, and so on. The `osameet2.sty` package references `mathptmx.sty` for Times text and math fonts. Authors who require Computer Modern font may modify the style file or, preferably, invoke the package `ae.sty` or similar for optimum output with Computer Modern.

### 3.2. *Author Names and Affiliations*

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### 3.3. *Abstract*

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### 3.5. *Notation*

#### 3.5.1. General Notation

Notation must be legible, clear, compact, and consistent with standard usage. In general, acronyms should be defined at first use.

### 3.5.2. Math Notation

Equations should use standard  $\text{\LaTeX}$  or  $\text{\AMSTeX}$  commands (sample from Krishnan *et al.* [1]).

$$\begin{aligned}\bar{\varepsilon} &= \frac{\int_0^\infty \varepsilon \exp(-\beta \varepsilon) d\varepsilon}{\int_0^\infty \exp(-\beta \varepsilon) d\varepsilon} \\ &= -\frac{d}{d\beta} \log \left[ \int_0^\infty \exp(-\beta \varepsilon) d\varepsilon \right] = \frac{1}{\beta} = kT.\end{aligned}\tag{1}$$

## 4. Tables and Figures

Figures and illustrations should be incorporated directly into the manuscript, and the size of a figure should be commensurate with the amount and value of the information conveyed by the figure.

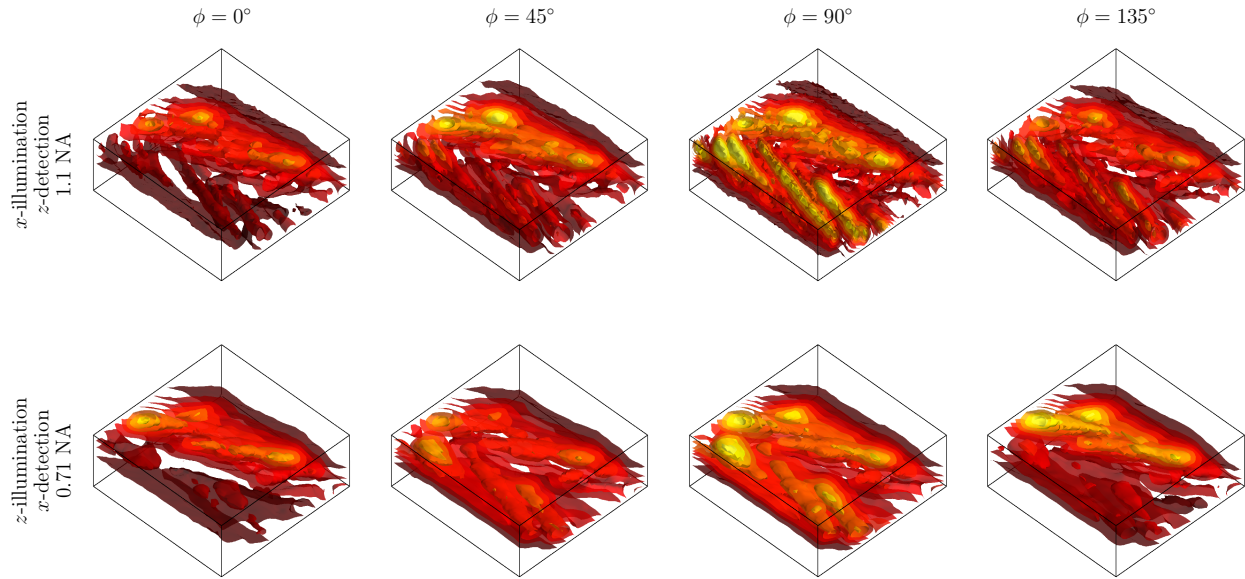


Fig. 1. Sample figure with preferred style for labeling parts.

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References should be cited with the `\cite{}` command. Bracketed citation style, as opposed to superscript, is preferred [1–7]. The `osameet2.sty` style file references `cite.sty`. Comprehensive journal abbreviations are available on the CrossRef web site: <http://www.crossref.org/titleList/>.

### References

1. E. Krishnan, A. M. Shan, T. Rishi, L. A. Ajith, C. V. Radhakrishnan, *On-line Tutorial on  $\text{\LaTeX}$* , “Mathematics” (Indian  $\text{\TeX}$  Users Group, 2000), <http://www.tug.org/tutorials/tugindia/chap11-scr.pdf>.
2. C. van Trigt, “Visual system-response functions and estimating reflectance,” *J. Opt. Soc. Am. A* **14**, 741–755 (1997).
3. T. Masters, *Practical Neural Network Recipes in C++* (Academic, 1993).
4. 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, 1997), pp. 705–758.

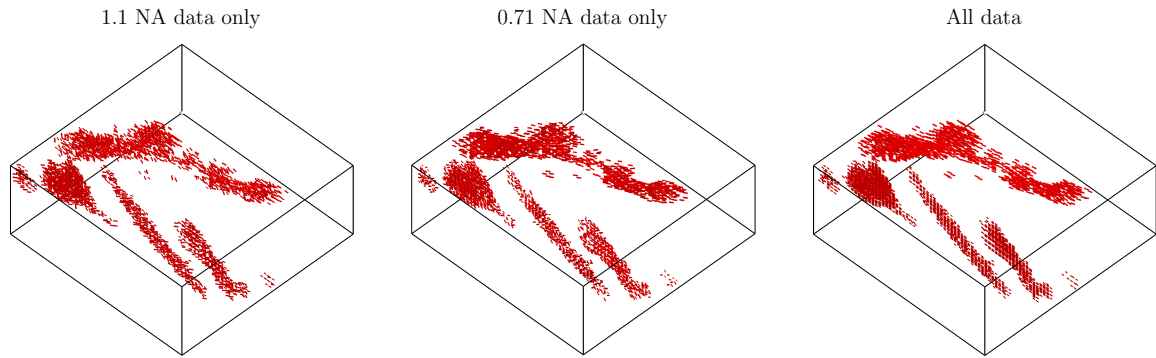


Fig. 2. Sample figure with preferred style for labeling parts.

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