

Erratum: Generic optical singularities in Brewster-reflected postparaxial beam fields [Phys. Rev. A **103**, 013510 (2021)]

Anirban Debnath^{*} and Nirmal K. Viswanathan[†]

School of Physics, University of Hyderabad, Hyderabad 500046, India



(Received 21 June 2025; published 25 July 2025)

DOI: [10.1103/3bqb-14y3](https://doi.org/10.1103/3bqb-14y3)

Here we suggest minor corrections to our publication Phys. Rev. A **103**, 013510 (2021). These corrections do not affect the central results.

I. ERRATA REGARDING TOPOLOGICAL CHARGES

In the paper, the topological charges [1] of the $\mathcal{E}_{\pm}\hat{\sigma}^{\pm}$ fields were observed to be $t = \mp 1$ [Sec. III, Fig. 3, page 4]. However, as understood from Eqs. (8)–(10), the $\mathcal{E}_{\pm}$ field functions are not pure LG modes [1] and hence cannot be assigned LG mode indices $l = \mp 1$. This distinction between topological charge and LG mode index was not clarified in the paper. So, the following corrections in this regard are to be considered:

(1) The symbol l used in this paper is to be regarded as the topological charge. One must read “ $l^{\mp}$ topological charges” instead of “ $l^{\mp}$ OAM” wherever applicable. In the last paragraph of Sec. V, one must read “topological charges” instead of “OAM structure.”

(2) OAM conservation is indeed satisfied in the present system (which can be verified based on our subsequent work of Ref. [2]); but it cannot be verified in a straightforward way as presumed in the last sentence of the second to the last paragraph of Sec. III. Hence this sentence can be omitted. For the same reason, one may also consider the omission of the phrase “due to conservation of total angular momentum” from the second paragraph of Sec. IV.

II. ERRATUM REGARDING FIG. 7

As pointed out in the caption of Fig. 10 of Ref. [3], “In any directly displayed beam image, the y pixel count starts at the top and proceeds downwards. But in a formal profile plot on the xy plane, the $\hat{y}$ direction is vertically upwards. So the direct image is flipped vertically with respect to the true profile.” This technical aspect was not considered while plotting the profiles of Fig. 7 of the present paper, so the corrected Fig. 7 must be considered as follows:

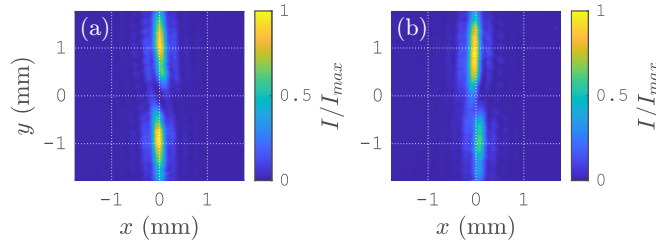


FIG. 7. Experimental single-slit diffraction patterns of the fields (a) $\mathcal{E}_{+}\hat{\mathbf{d}}^{+}$ and (b) $\mathcal{E}_{-}\hat{\mathbf{d}}^{-}$ [Eq. (27)], showing $l^{\mp}$ topological charges.

^{*}Contact author: anirban.debnath090@gmail.com

[†]Contact author: nirmalsp@uohyd.ac.in

The fact that these are the correct far-field diffraction patterns for $l^\mp$ topological charges is verified based on Ref. [4].

- [1] G. J. Gbur, *Singular Optics* (CRC Press, Taylor & Francis Group, LLC, FL, 2017).
- [2] A. Debnath and N. K. Viswanathan, [Proc. SPIE **12436**, 124360S \(2023\)](#).
- [3] A. Debnath, N. Kumar, U. Baishya, and N. K. Viswanathan, [Phys. Rev. A **107**, 013522 \(2023\)](#).
- [4] A. Bekshaev, K. Y. Bliokh, and M. Soskin, [J. Opt. **13**, 053001 \(2011\)](#).