Science Advances

AAAS

advances.sciencemag.org/cgi/content/full/3/6/e1602738/DC1

Supplementary Materials for

Topologically enabled optical nanomotors

Ognjen Ilic, Ido Kaminer, Bo Zhen, Owen D. Miller, Hrvoje Buljan, Marin Soljačić

Published 30 June 2017, *Sci. Adv.* **3**, e1602738 (2017)
DOI: 10.1126/sciadv.1602738

This PDF file includes:

- fig. S1. Vortex annihilation and conservation of topological charge.
- fig. S2. Vortex annihilation and conservation of topological charge.
- fig. S3. Attractor map for a larger particle/air as the ambient medium.

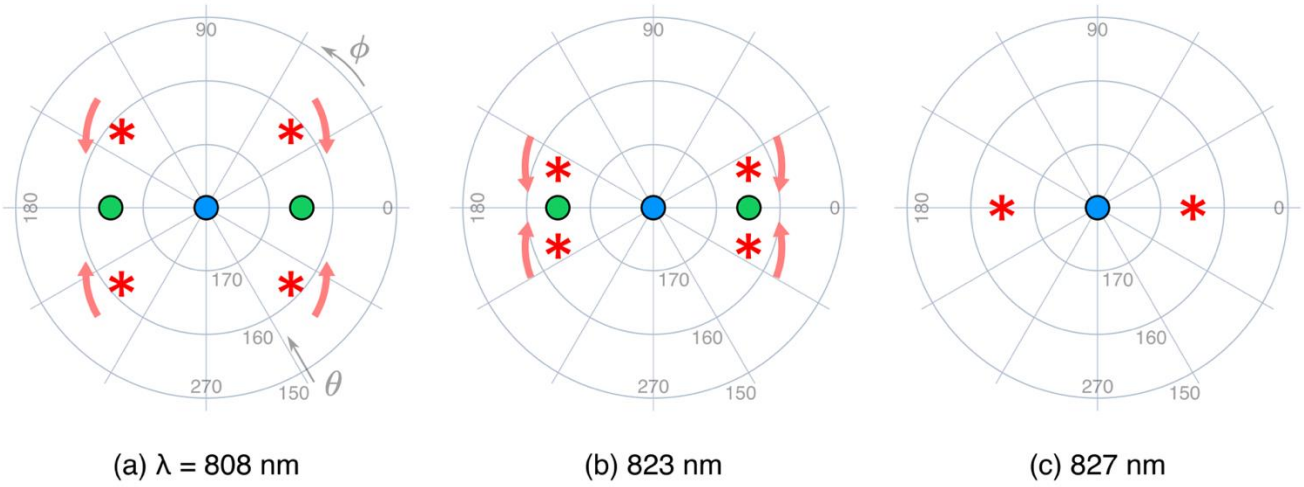

fig. S1. Vortex annihilation and conservation of topological charge. An example of merging of two -1 charges (red stars) and a +1 charge (green circle) from Fig. 4, $b_1 \rightarrow b_2$. The view is from the $\theta = 0^o, \phi = 180^o$ pole, for closely separated wavelengths (**a**) 808 nm, (**b**) 823nm, (**c**) 827nm. In contrast to Fig. 4, which shows a reduced coordinate space ($\phi \in [0^o, 90^o]$), here we visualize the entire azimuthal range $\phi \in [0^o, 360^o]$.

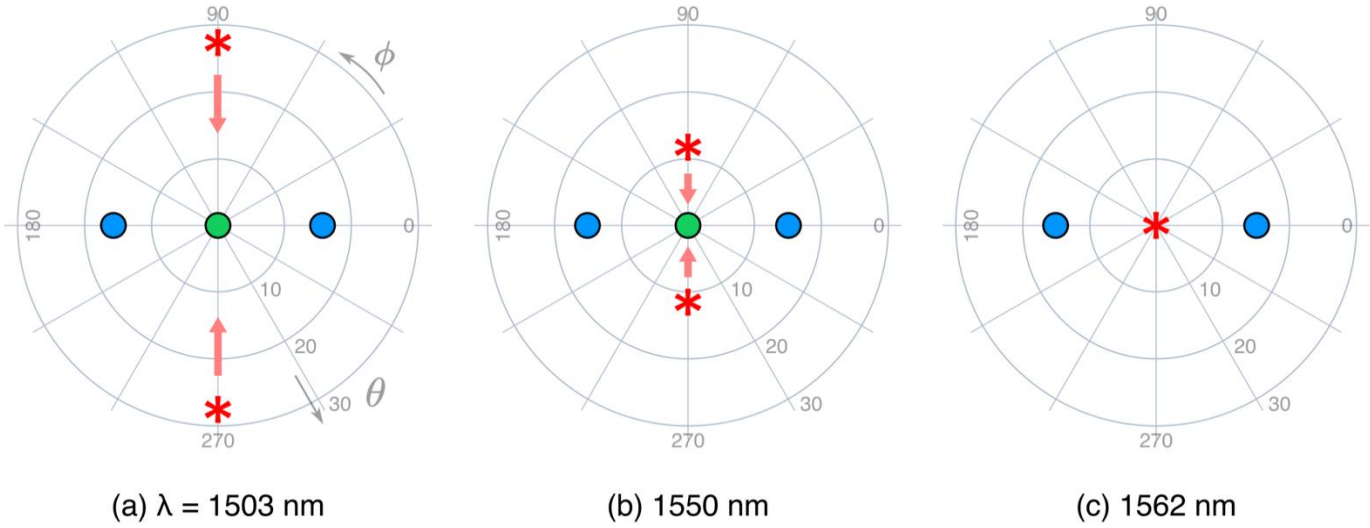

fig. S2. Vortex annihilation and conservation of topological charge. An example of merging of two -1 charges (red charges) and a +1 charge (green circle) from Fig. $4c_1$. The view is from the $\theta = 0^o, \phi = 0^o$ pole, for closely separated wavelengths (**a**) 1503 nm, (**b**) 1550 nm, (**c**) 1562nm. In contrast to Fig. 4, which shows a reduced coordinate space ($\phi \in [0^o, 90^o]$), here we visualize the entire azimuthal range $\phi \in [0^o, 360^o]$.

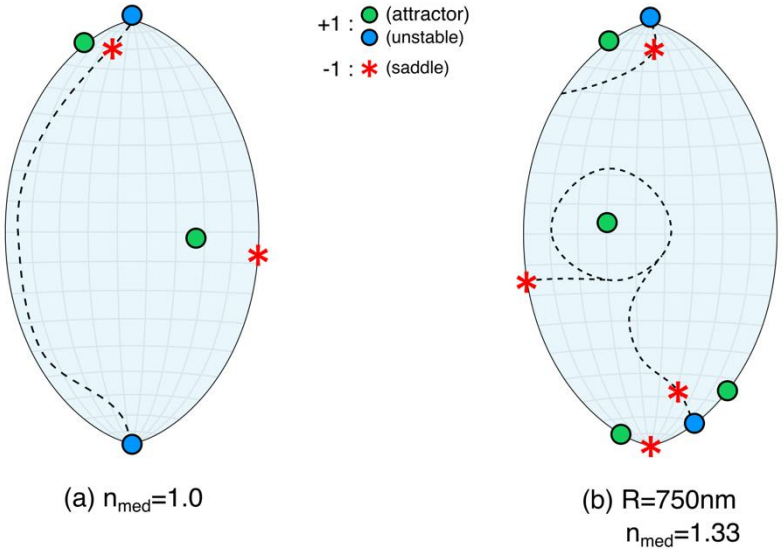

fig. S3. Attractor map for a larger particle/air as the ambient medium. Attractor map for the case of the ambient medium with refractive index n_{med}=1.0 (**a**), and a case of a larger particle (R=750 nm) in the ambient medium of n_{med}=1.33 (**b**). In both cases, λ=1064 nm.