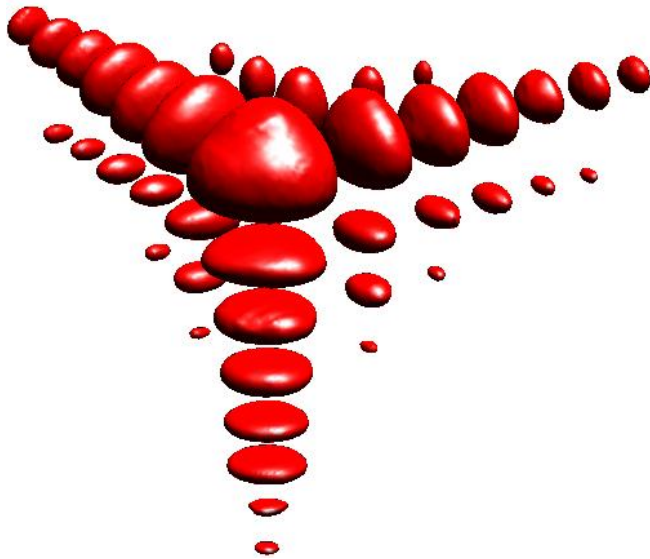


# Airy cube light bullets

---



[ EXPERIMENTALLY  
REALIZED AIRY CUBE  
LIGHT BULLETS ]

The seek of light beams that propagate in a stationary way both in space and in time, called light bullets due to their particle-like nature, has been for long the holy grail of researchers in optics. In a recent report [D. Abdollahpour, S. Suntsov, D. G. Papazoglou, and S. Tzortzakis, "Spatiotemporal Airy Light Bullets in the Linear and Nonlinear Regimes", [Phys. Rev. Lett. 105, 253901 \(2010\)](#)] we demonstrate the experimental realization of  $\text{Airy}^3$  light bullets. These wavepackets (as illustrated in the figure) are Airy functions in all spatial and temporal dimensions. Thanks to the self-healing properties of Airy beams, it is shown that these light bullets are robust both in the linear and the nonlinear propagation regimes. Such intense light bullets could find interesting applications in different fields such as biology tomography, microscopy, or long-range signal transmission.