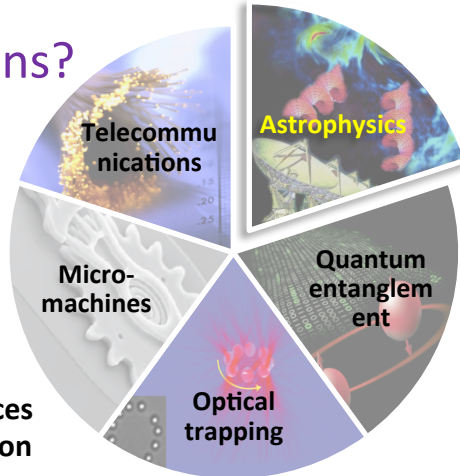


TWISTING WAVES

What is an optical vortex?

- azimuthal phase dependence $\exp(il\phi)$, l times 2π phase-change on a close loop around the axis
- *singularity* on propagation axis, straight line of darkness
- doughnut-shaped intensity pattern
- can carry *orbital angular momentum* $OAM=l\hbar$ per photon (in addition to spin), l having any integer value between $\pm \infty$

Applications?



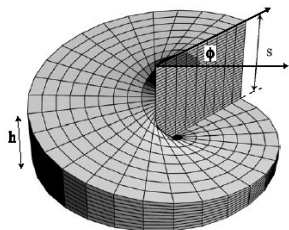
Our work?

Design and testing of devices for production and detection of radio vortices.

□ Q-plates



□ Spiral Phase Plates



Observation of the vortex structure of a non-integer vortex beam, J. Leach, E. Yao and M. J Padgett, New J. Phys. 6 (2004) 71

