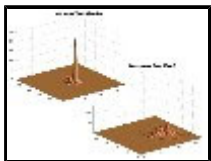




Tutorials

How do we characterize high intensities ?



Characterization of focal field formed by a large numerical aperture paraboloidal mirror and generation of ultra-high intensity (10^{22} W cm⁻²)

The highest intensity of 10^{22} W cm⁻² has been demonstrated at the University of Michigan. This was done by measuring the aberrations of a high numerical aperture off-axis paraboloid and correcting for the aberrations using adaptive optics. The characterized aberrations were then used to accurately calculate field at the focus using vector diffraction formalism. Using this methodology, an intensity of 7×10^{21} W cm⁻² was demonstrated by focusing a 45 TW laser beam off an $f/0.6$, 90° off-axis paraboloid after correcting the aberrations of the paraboloid and the low energy reference beam.