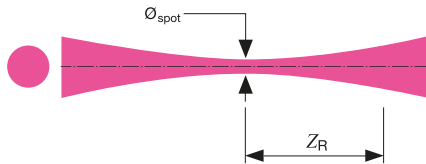


RAYLEIGH RANGE

DETERMINATION OF THE RAYLEIGH RANGE

Beam path of focused beam.



For a Gaussian beam the depth of focus is defined by the Rayleigh range $2 \cdot z_R$ in which the beam waist diameter \varnothing_{spot} does not increase more than a factor of 1.41.

$$2z_R = \frac{2 \cdot \pi \cdot \varnothing_{spot}^2}{4\lambda}$$

λ = wavelength in μm

\varnothing_{spot} = beam waist diameter in μm

EXAMPLE

Spot size: $\varnothing_{spot} = 7.1 \mu\text{m}$

Wavelength: $\lambda = 780 \text{ nm}$

Rayleigh range: $2z_R = 20.3 \mu\text{m}$

This is a printout of the page <https://sukhamburg.com/support/technotes/fiberoptics/coupling/focusing/ryleigh.html>
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