

Exercise #5: Solid angle and NA

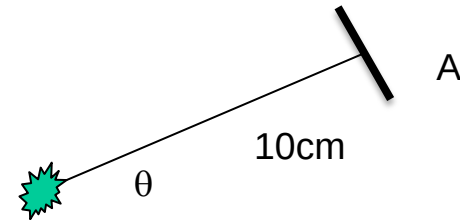


The light of a small source (point-like) with isotropic intensity $I=100\text{cd}$ is captured with a microscope objective of with $\text{NA}=0.8$.
How much luminous flux can be collected ?

Exercise #6: Intensity measurement



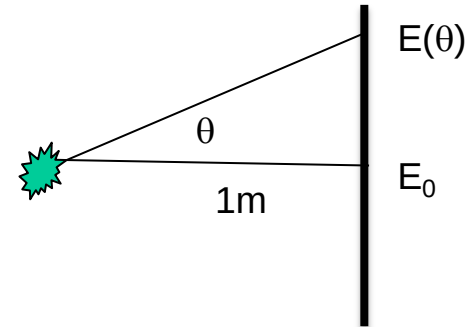
You want to measure the radiant intensity I of a source. You use a detector of an active area of $A=1\text{cm}^2$ at a distance of 10cm . For some angle you measure a total power of 0.5W on the detector. What is the intensity in this direction?



Exercise #7: Irradiance distribution point source



A point source is located 1m in front of a wall.
The point source is isotropic and radiates $I=100\text{cd}$.
Calculate the max. irradiance E_0 at the central
illumination point and the irradiance drop as a
function of the angle to the axis



Exercise #8: Irradiance distribution Lambert



A small Lambertian source ($A=1\text{mm}^2$) is located 1m in front of a wall. The source radiance is $L=100\text{cd/mm}^2$. Calculate the max. irradiance E_0 at the central illumination point and the irradiance drop as a function of the angle to the axis.

